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Test Booklet Series

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TEST-31

TEST BOOKLET

GENERAL STUDIES (P) 2022 – Test – 3500

Time Allowed: Two Hours **Maximum Marks: 200**

2022

FULL LENGTH TEST (COMPLETE SYLLABUS

Indian Constitution, Political System and Governance

Geography + History of India

Indian Economy & Social

Development + Ecology & Environment + General Science

+ Current Affairs

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE ASKED TO DO SO

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1. Consider the following statements regarding the Nationally Determined Contributions (NDC) Transport Initiative for Asia (NDC-TIA):

1. It is an ASEAN initiative that aims to facilitate a paradigm shift to zero-emission transport across Asia.
2. The Indian component of the initiative is implemented by the Ministry of Environment, Forest and Climate Change in partnership with the Ministry of Road Transport and Highways.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

2. Which of the following is the nodal ministry to implement the Panchayat (Extension of the Scheduled Areas) Act, 1996?

(a) Ministry of Panchayati Raj
(b) Ministry of Rural Development
(c) Ministry of Tribal Affairs
(d) Ministry of Agriculture & Farmers Welfare

3. With reference to the development of education in India, which of the following statements is correct?

(a) The University Grants Commission was constituted on the recommendation of the Kothari Education Commission.
(b) The Sergeant Scheme introduced the universal free and compulsory education for children between the age of 6 and 11 years.
(c) The Indian University Act, 1904 was enacted on the recommendation of the Sadler University Commission.
(d) Sir Thomas Raleigh commission was appointed to study and report on the problems faced by primary education system.

4. Consider the following statements regarding tarballs that have recently resurfaced on the beaches of Mumbai and Goa:

1. Oil spills from cargo ships are major reason for their formation.
2. They get stuck to the skin and cause irritation.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

5. Consider the following statements with reference to Indian Railways:

1. The Indian Railways is the world's second-largest rail network under one management.
2. The FDI Policy permits 74% FDI in the railway's infrastructure sector.
3. National Rail Plan (NRP) for India – 2030 aims to increase the modal share of the Railways in freight to 45 percent.

Which of the statements given above is/are correct?

(a) 1 and 2 only
(b) 2 only
(c) 1 and 3 only
(d) 2 and 3 only

6. In the context of cultural history of India, 'Namda art' recently seen in the news refers to a/an

(a) handmade drawing on bamboo handicrafts in Western India.
(b) Himalayan felted carpet that features hand embroidered patterns in colored threads.
(c) hand-painted decorative silk cloth in Eastern Indian
(d) wall art using plaster of paris in North-eastern India.

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7. Which of the following statements is correct regarding mass movements?

(a) It involves transfer of debris down the slopes under the direct influence of gravity.

(b) Mass movements are inactive over weathered slopes over unweathered materials.

(c) Geomorphic agents participate in the process of mass movements.

(d) Mass movement is a type of erosion process.

8. What is 'Gateway to Hell ' recently seen in the news?

(a) Deep trench along the pacific rim of fire

(b) Volcanic ridge located on the Atlantic Mid Oceanic Ridge

(c) Deep fracture in earth crust along the African Rift Valley

(d) Huge natural gas crater

9. Which of the following will lead to an increase in the economic cost of foodgrains to the Food Corporation of India?

1. Increase in Minimum Support Price (MSP)
2. Higher procurement of food grains due to open-ended procurement policy
3. Increased transit loss of foodgrains
4. Rise in freight cost

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 1, 3 and 4 only

(c) 2, 3 and 4 only

(d) 1, 2, 3 and 4

10. Consider the following statements regarding *Aqua Regia*:

1. It is a mixture of concentrated hydrochloric acid and concentrated nitric acid in the ratio of 1:3.
2. It is one of the few reagents that are able to dissolve gold and platinum.

Which of the statements given above is/are ***not*** correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

11. Consider the following statements:

1. White hydrogen refers to the naturally-occurring hydrogen found in geological deposits.
2. Grey hydrogen is produced from fossil fuel and commonly uses the steam methane reforming (SMR) method.

Which of the statements given above is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

12. Rupadarsaka, in the Mauryan administration was referred to:

(a) superintendent of ports

(b) accountant-general

(c) officer-in-charge of coinage

(d) royal treasurer

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13. The National Legal Services Authority (NALSA) provides for free Legal Services to the weaker sections of the society. Which of the following can be intended beneficiaries for free legal services?

1. A woman from Scheduled Caste
2. A child
3. A woman having annual income of more than 5 lakhs
4. A victim of industrial disaster
5. A victim of ethnic violence
6. A disabled person

Select the correct answer using the code given below.

(a) 1, 2, 5 and 6 only
(b) 1, 4 and 5 only
(c) 2, 3, 4 and 6 only
(d) 1, 2, 3, 4, 5 and 6

14. Consider the following statements regarding a personality:

1. He was contemporary to Deccan Sultan Ali Adil Shah of Bijapur.
2. He led the troops of the Vijayanagara Empire in the battle of Talikota.
3. He patronized poet Bhattu Murti.

Which of the following personalities is being described in the statements given above?

(a) Krishna Deva Raya
(b) Deva Raya-II
(c) Achyuta Deva Raya
(d) Rama Raya

15. With reference to Cross Border Insolvency process in India often seen in the news, consider the following statements:

1. India has adopted the United Nations Commission on International Trade Law (UNCITRAL) Model Law on Cross-Border Insolvency of 1997.
2. The Insolvency and Bankruptcy Code, 2016 allows for automatic recognition of any insolvency proceedings in other countries.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

16. Article 19(1) (a) of the Constitution of India states that, "all citizens shall have the right to freedom of speech and expression". Which of the following rights is/are implicit under the said Article?

1. Freedom of Commercial speech
2. Right to Broadcast
3. Right to criticize
4. Right to expression beyond national boundaries

Select the correct answer using the codes given below.

(a) 1 and 2 only
(b) 3 and 4 only
(c) 1, 2 and 4 only
(d) 1, 2, 3, and 4

17. Which of the following types of entities accounts for the highest percentage of lending of microcredit in India?

(a) Non-Profit MFIs (Micro Finance Institutions)
(b) Small Finance Banks
(c) NBFC-MFIs (Non-Banking Financial Companies registered as Micro Finance Institutions)
(d) Scheduled Commercial Banks

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18. With reference to the jurisdiction and powers of the Supreme Court, consider the following statements:

1. Parliament can increase the jurisdiction and powers of the Supreme Court with respect to any of the matters in the Union List.
2. Parliament can diminish the jurisdiction and powers of the Supreme Court when a national emergency is in operation.

Which of the above statements is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

19. Consider the following statements regarding the Indian Renewable Energy Development Agency Limited (IREDA):

1. It is a Navratna Government of India Enterprise.
2. It aims to give financial support to schemes for generating electricity through new and renewable sources and conserving energy through energy efficiency.
3. It works directly under the administrative control of the Ministry of New and Renewable Energy (MNRE).

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 and 3 only
(c) 3 only
(d) 1, 2 and 3

20. Consider the following statement regarding the Sovereign Wealth Funds (SWFs):

1. SWFs are state-owned investment funds.
2. SWF's primary objective is to boost exports and reduce import dependence.
3. SWFs are used to stabilize the economy from excess volatility in revenues.

Which of the statements given above is/are correct?

(a) 1 and 2 only
(b) 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

21. Consider the following statements regarding the Primary Cooperative Banks (PCBs):

1. Primary Cooperative Banks mostly cater to the financial needs of customers in rural areas.
2. PCBs are regulated by NABARD (National Bank for Agriculture and Rural Development).
3. PCBs can raise capital through the issuance of equity shares.

Which of the statements given above is/are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 3 only
(d) 1 and 3 only

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22. With reference to contempt of court, consider the following statements:

1. The consent of the Attorney General of India is mandatory when a private citizen wants to initiate a case of contempt of court against a person.
2. Constitution empowers the Supreme Court to initiate contempt cases on its own.
3. The Attorney General brings in a motion before the Supreme Court and High Courts for initiating a case of criminal contempt.

Which of the statements given above is/are correct?

(a) 1 only
(b) 1 and 2 only
(c) 3 only
(d) 1, 2 and 3

23. Which of the following organisations established Global Forest Watch?

(a) United Nations Development Programme (UNDP)
(b) World Resources Institute (WRI)
(c) Global Wildlife conservation (GWC)
(d) Wildlife Conservation Society (WCS)

24. With reference to the Constitution of India, consider the following statements regarding the use of languages:

1. All proceedings in the Supreme Court and in every High court shall be in the English Language until Parliament by law otherwise provides.
2. It is the duty of the Union to provide for the spread of the Hindi language so that it may serve as a medium of expression for all the elements of the composite culture of India.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

25. Consider the following statements regarding nuclear DNA (nDNA) and mitochondrial DNA (mtDNA):

1. While mtDNA is double-stranded and circular, nDNA is single-stranded and circular.
2. The mutation rate in mtDNA is much higher than in nDNA.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

26. Consider the following statements in the context of a Limited Liability Partnership entity in India:

1. Companies Act, 2013 defines the term 'Limited Liability Partnership'.
2. A Limited Liability Partnership's existence discontinues in case any one of its partners is changed.
3. A Limited Liability Partnership cannot come out with its own IPO.

Which of the following statements given above is/are correct?

(a) 2 and 3 only
(b) 1 only
(c) 3 only
(d) 1, 2 and 3

27. Consider the following statements regarding the Deucha-Pachami coal block mine recently seen in the news:

1. Its located in located in West Bengal.
2. Its world's largest coal mine block.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

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28. With reference to Energy efficiency in ecosystems, consider the following statements:

1. Green plants make use of more than 50 per cent of the solar radiation available to them.
2. The animals representing the second trophic level use more energy during respiration, in comparison to plants.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

29. In the context of solar flares, consider the following statements:

1. Solar flares are associated with solar magnetic storms known as Coronal Mass Ejection.
2. The harmful radiations from such a flare cannot pass through Earth's atmosphere to physically affect humans on the ground.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

30. With reference to the Maratha administration during Chattrapati Shivaji, which of the following statements is ***not*** correct?

(a) Deshmukhs and deshpandes were incharge of group of villages and enjoyed a hereditary status.
(b) He abolished the system of granting jagirs and started the system of paying officers in cash.
(c) The cultivators was at liberty to pay either in cash or kind, according to his own convenience and will.
(d) His revenue system was based on that of Malik Amber of Ahmadnagar.

31. Consider the following statements regarding the Short Notice Questions in the Parliament:

1. The notice for a Short Notice Question is addressed to the Speaker of the Lok Sabha.
2. There is no requirement to submit reasons for asking Questions at Short Notice.
3. If the Speaker is of opinion that the question is not of an urgent nature, the question cannot be admitted as a Short Notice Question.

Which of the statements given above is/are correct?

(a) 1 and 2 only
(b) 2 only
(c) 3 only
(d) 1, 2 and 3

32. Consider the following statements regarding LiDAR:

1. Topographic lidar uses water-penetrating green light to measure seafloor and riverbed elevations.
2. Bathymetric lidar typically uses a near-infrared laser to map the land.

Which of the statements given above is/are ***not*** correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

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33. Consider the following statements regarding innovations of Lunar Reconnaissance Orbiter (LRO):

1. It is the first deep-space precision orbit determination by laser ranging from Earth
2. It is the first global thermal mapping of a planetary body covering a full range of local times and seasons.
3. It is the first multi-beam laser altimeter system in space.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 and 3 only
(c) 1, 2 and 3
(d) None

34. Which of the following statements is ***not*** correct with reference to neutrino?

(a) It has no electrical charge.
(b) They are the most abundant particles with mass in the universe.
(c) They travel faster than the speed of light.
(d) A neutrino born as one flavor will eventually morph into the other varieties.

35. India has a bilateral space security dialogue with which of the following countries?

1. United States of America
2. France
3. Japan
4. Russia

Select the correct answer using the code given below.

(a) 1 and 2 only
(b) 2 and 3 only
(c) 3 and 4 only
(d) 1, 2 and 3

36. With reference to the pardoning powers of the President of India and the United States of America, consider the following statements:

1. Unlike the USA President, whose powers to grant pardons are almost absolute, the President of India has to act on the advice of the Cabinet.
2. Pardoning powers to both the President of the USA and India have been conferred by the constitution.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

37. With reference to Secularism in India, which of the following statements is correct?

(a) The Constitution provides that all persons are equally entitled to the right to freely profess, practice, propagate and convert to any religion without any restrictions.
(b) The Constitution provides for the reservation of seats in the legislature on the basis of religion if that community is not adequately represented.
(c) The Constitution provides for positive secularism wherein the state can patronize and support minority religion.
(d) An educational institution established under any religious endowment and administered by the state has the freedom to impart religious instruction within its premises.

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38. Recently the term Khaibar-buster; frequently seen in news, is associated with:

(a) Anti-insurgent operation conducted by Pakistan army in Khyber-Pakhtunkhwa region
(b) Common invasive species found in Khyber-Pakhtunkhwa region of Pakistan
(c) New Houbara Bustards species of Khyber-Pakhtunkhwa region of Pakistan
(d) A new missile recently tested by Iran

39. With reference to the Fifth and the Sixth Schedule of the Constitution of India, consider the following statements:

1. Both the Fifth and Sixth Schedule include only the north-eastern states.
2. The President has the authority to declare any area as a Scheduled Area under the Fifth Schedule.
3. The Governor of the State is empowered to determine the area administrative units of the Autonomous Districts under the Sixth Schedule.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 and 3 only
(c) 3 only
(d) None

40. With reference to the Climate Finance Leadership Initiative (CFLI) India, consider the following statements:

1. It is a public-private collaboration to unlock private climate finance to help India meet its commitments under Paris Agreement.
2. It was launched during the 2015 Paris Climate Change Conference.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

41. Which of the following is/are ***not*** included as a part of India's GDP?

1. Activities of foreign embassies located in India
2. Income of foreign multinational companies in India
3. Transfer payments

Select the correct answer using the code given below.

(a) 1 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

42. One of the three gems of the Kannada language, Pampa was known as the 'father of Kannada'. Consider the following statements regarding Pampa:

1. Pampa was attached to the court of the Rashtrakuta king Krishna III.
2. He is famous for the poetic work known as Adipurana.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

43. Arrange the following Mahajanpadas existing during the 6th century BC from East to West:

1. Gandhara
2. Anga
3. Kuru
4. Asmaka

Select the correct answer using the code given below.

(a) 2-3-4-1
(b) 2-4-3-1
(c) 4-2-3-1
(d) 4-3-2-1

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44. Which of the following is/are required to be implemented by the party nations of the Minamata Convention for Mercury?

1. Hundred per cent eliminating the use and release of mercury from artisanal and small-scale gold mining (ASGM).
2. Control mercury air emissions from coal-fired power plants, waste incineration and cement production.

Select the correct answer using the code given below.

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

45. Consider the following statements regarding the Global Network against Food Crises :

1. It was founded by European Union, Food and Agriculture Organization (FAO) and World Food Programme (WFP).
2. It releases the Global Hunger Index every year.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

46. Marginal Propensity to Import is best described as a change in the import induced by a change in the

(a) export
(b) rate of inflation
(c) disposable income
(d) savings rate in the economy

47. The recently conserved and restored Sabz Burj tomb is situated at

(a) Agra
(b) Jodhpur
(c) Delhi
(d) Hyderabad

48. Which of the following is/are the advantages of cultivating plants through hydroponics vis-a-vis traditional farming?

1. It requires less space.
2. It uses less water.
3. The growth rate of plant is faster.

Select the correct answer using the code given below.

(a) 1 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

49. Consider the following pairs:

Sikh Gurus		***Associated event***
1. Guru Hargobind	:	Construction of Akal Takht
2. Guru Gobind Singh	:	Transfer of authority to the Guru Granth Sahib
3. Guru Nanak	:	Standardization of the Gurumukhi script
4. Guru Arjan Dev	:	Compilation of the Adi Granth

Which of the pairs given above is/are correctly matched?

(a) 1, 2 and 4 only
(b) 1, 2, 3 and 4
(c) 1 and 4 only
(d) 2 only

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50. Consider the following statements regarding Employment Elasticity:

1. It refers to the percentage change in employment associated with a 1% change in inflation in an economy.
2. Higher employment elasticity indicates more labour-intensive growth of the economy.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

51. Consider the following statements regarding Used Cooking Oil (UCO):

1. It is used for making soap, cosmetics, and animal feed.
2. Using biodiesel made from UCO may reduce carbon emissions and promote a circular economy.
3. Food Safety and Standards Authority of India (FSSAI) has launched the Repurpose Used Cooking Oil (RUCO) project.

Which of the statements given above is/are correct?

(a) 1 and 2 only
(b) 2 only
(c) 3 only
(d) 1, 2 and 3

52. Consider the following statements about tropopause:

1. The air temperature at the tropopause over the equator is much lower than that over poles.
2. The tropopause is located at about 18 km at poles and at about 5 km at the equator.
3. The temperature at the tropopause nearly remains constant with height.

Which of the statements given above are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

53. Consider the following pairs:

State/ UT		***State Bird***
1. Telangana	**:**	Rose Ringed Parakeet
2. Jammu and Kashmir	**:**	Kalij Pheasant
3. Ladakh	**:**	Black-necked crane
4. Sikkim	**:**	White-winged wood duck

Which of the pairs given above are correctly matched?

(a) 1, 3 and 4 only
(b) 2 and 3 only
(c) 1 and 4 only
(d) 1, 2, 3 and 4

54. Consider the following statements regarding Incremental Capital Output Ratio (ICOR):

1. It is used to assess the marginal amount of investment capital necessary for a country.
2. A high ICOR is preferred as it indicates a country's production is more efficient.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

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55. Consider the following statements about Earthquake waves:

1. P-waves create troughs and crests in the material through which they pass.
2. S-waves cause density differences in the material leading to stretching and squeezing of the material.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

56. Which of the following statements is correct regarding the First Factory Act, 1881?

(a) It provided for the establishment of the First Factory Commission in India.
(b) It prohibited the employment of children under the age of 12.
(c) It brought down the hours of work to eleven for adults and to six for children.
(d) It was enacted due to pressure from Lancashire mill-owners in England to regulate the working hours of labours in India.

57. With reference to fly ash management and utilization mission, consider the following statements:

1. The Mission's primary goal will be to coordinate and monitor issues relating to the handling and disposal of fly ash and associated issues.
2. The Mission will be headed by the Chief Executive Officer of NITI Aayog and the World Wide Fund For Nature-India.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

58. It is a project of the Indian Railways to establish a high-speed rail network in India launched in 2014. The project will connect the four megacities of India, viz. Delhi, Mumbai, Kolkata, and Chennai. The project is implemented by National High-Speed Rail Corporation Limited.

Which of the following projects is being described in the above passage?

(a) Golden Quadrilateral
(b) Diamond Quadrilateral
(c) Silver Quadrilateral
(d) Dedicated Freight Corridor

59. With reference to the National Calendar of India i.e. the Saka Samvat, consider the following statements:

1. The Saka calendar has the same number of months as the Vikram Samvat.
2. It is both a solar and a lunar calendar.
3. It was adopted as India's national calendar on the recommendation of the Meghnad Saha committee.

Which of the statements given above is/are correct?

(a) 1 only
(b) 1 and 2 only
(c) 1, 2 and 3
(d) 2 only

60. Consider the following statements with reference to the EDGE (Excellence in Design for Greater Efficiencies):

1. EDGE is a green building certification system.
2. It has been developed under the collaborative efforts of TERI and the Bureau of Energy Efficiency.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

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61. In 1943, under the leadership of Prodosh Das Gupta, a sculptor, few young artists formed the Calcutta Group. What was the underlying philosophy of artworks of this group?

(a) They focused on women empowerment by the bold display of women in their artworks.

(b) They believed in an art that was universal in character and free from older values.

(c) They expressed the confluence of Indian mythology and modern western ideas in their artworks.

(d) They were too sentimental and deeply interested in reviving the Indian social values.

62. With reference to the Twenty-point Programme, consider the following statements:

1. The basic objective was to eradicate poverty and to improve the quality of life of the poor and the underprivileged population of the country.
2. It was introduced for the first time during the sixth five-year plan period.

Which of the statements given above is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

63. Consider the following statements regarding the PARIVESH portal:

1. It has been developed and hosted by the Ministry of Environment, Forest and Climate Change, with technical support from National Informatics Centre (NIC).
2. It is a web-based workflow application that is used for online submission of the proposals for seeking Environment, Forest and Wildlife Clearances.
3. At present, it works only for seeking clearance from Central authorities.

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 2 only

(c) 3 only

(d) 1, 2 and 3

64. Consider the following statements:

1. The south-facing slopes of the Alps receive higher insolation than the north-facing slopes.
2. Fohn is a moist wind that blows over the leeward side of the Alps.

Which of the statements given above is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

65. Consider the following statements with respect to Hedge funds:

1. Hedge funds, defined under the Securities and Exchange Board of India Act, 1992, are unregistered private investment partnerships that invest and trade in securities.
2. Hedge funds are subject to regulatory provisions similar to Mutual Funds.

Which of the above statement is/ are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

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66. With reference to the Left Movements in India during the British period, consider the following statements:

1. In the Gandhi-Bose tussle, the Revolutionary Communist Party supported Subhash Chandra Bose.
2. The Revolutionary Socialist Party was launched by Saumyendranath Tagore.
3. The Congress Socialist Party was launched to work within the Congress.

Which of the statements given above is/are correct?

(a) 1 only
(b) 1 and 2 only
(c) 3 only
(d) 2 and 3 only

67. Consider the following statements regarding Supplementary Food Chains:

1. In an ecosystem, it is formed by scavengers.
2. These food chains are present in all ecosystems but dominate in forest ecosystems and shallow water communities.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

68. Consider the following statements regarding the Indian Press Act, 1910:

1. It revived the worst features of Lytton's Press Act of 1878.
2. The Vernacular press provided no right of appeal to a court of law against the Magistrate's decision.
3. It was repealed by the Indian Press (Emergency Powers) Act, 1931.

Which of the statements given above is/are correct?

(a) 1 only
(b) 1 and 3 only
(c) 1 and 2 only
(d) None

69. With reference to the textiles sector in India, consider the following statements:

1. The Indian textile industry is highly fragmented and is being dominated by the unorganized sector and small and medium industries.
2. Textiles currently contribute around 4 percent to the export earnings of India.
3. India is the second-largest producer of silk in the world.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

70. This form of puppetry is indigenous to the region of Tamil Nadu. It combines features of rod and string puppetry. The puppets used in this form are the largest and heaviest marionettes found in India.

Identify the form of puppetry from the passage given above.

(a) Bommalattam
(b) Gombeyatta
(c) Pavakoothu
(d) Putul Nachh

71. With reference to Pandrethan temple recently seen in the news, consider the following statements:

1. It is located on the banks of the river Jhelum.
2. It is dedicated to Lord Vishnu.
3. The Temple is built in the Sarvatrobhadra style of temple architecture.

Which of the statements given above is/are correct?

(a) 2 only
(b) 1 and 3 only
(c) 1 and 2 only
(d) 3 only

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72. Astronomers have detected X-rays from Uranus for the first time. Consider the following statements regarding X rays:

1. X-rays are types of electromagnetic radiation probably most well-known for their ability to see through a person's skin and reveal images of the bones beneath it.
2. They are high-frequency radiations that reside between ultraviolet and gamma rays.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 and 2

73. In the context of the modern history of India, the Crown Colony Plan is associated to

(a) separation of hilly regions of North-East India.
(b) creating Afghanistan a British friendly buffer State to counter Russian expansionism in the Central Asia.
(c) separation of Burma Province from British India in 1937 and granting the colony a new Constitution.
(d) agreements between the British Government and rulers of Indian States who wanted to remain independent after August 15, 1947.

74. Who among the following takes part in the election of the Rajya Sabha members?

1. Elected Members of the State Legislative Assembly
2. Nominated Members of the State Legislative Assembly
3. Elected Members of the Legislative Council of the States
4. Elected Members of the Union Territories of Delhi and Puducherry

Select the correct answer using the code given below.

(a) 1 and 2 only
(b) 1 and 4 only
(c) 2 and 3 only
(d) 3 and 4 only

75. With reference to the Indian agriculture sector, which of the following statements is/are correct?

1. Number of operational land holdings has increased in the past decade.
2. Highest number of operational landholders belong to Maharashtra.
3. Share of small and marginal holdings in the total operated area is more than 60 percent.

Select the correct answer using the code given below.

(a) 1 only
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

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76. In the context of socio-religious movements, consider the following statements regarding the Deoband School:

1. It did not prepare its students for government jobs but for the preaching of the Islamic faith.
2. It opposed the formation of the Indian National Congress in 1885.
3. It issued a religious decree (fatwa) against 'The Muhammaden Anglo-Oriental Association'.

Which of the statements given above is/are correct?

(a) 1 and 2 only
(b) 1 and 3 only
(c) 1 only
(d) None

77. With reference to the RAMSAR Convention, which of the following is/are included in the definition of Wetlands?

1. Underground aquifers
2. Paddies field
3. Salt pans

Select the correct answer using the code given below.

(a) 1 only
(b) 1 and 3 only
(c) 2 only
(d) 1, 2 and 3

78. It is one of the most influential schools of orthodox philosophical systems of Indian philosophy which is built on the concept of logical thinking. According to this system, valid knowledge is defined as real knowledge, that is, one knows about the object as it exists. This system of philosophy considers God who creates, sustains, and destroys the universe.

Which of the following philosophy is being referred to in the passage given above?

(a) Vaisheshika philosophy
(b) Advaita philosophy
(c) Mimamsa philosophy
(d) Nyaya philosophy

79. Consider the following statements with reference to the Nehru Report of 1928:

1. Dr. M. A. Ansari was the president of the All-Parties conference that appointed Moti Lal Nehru Committee to consider and determine the principles of a Constitution for India.
2. Sir Tej Bahadur Sapru and Subhash Chandra Bose were members of the Nehru Committee.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

80. Consider the following statements regarding the sessions of Indian National Congress (INC) during the pre-independence era:

1. Rash Behari Ghosh was the only person who presided over two consecutive sessions.
2. J. B. Kriplani was president of INC during the transfer of power from Britain to India in 1947.
3. The Faizpur session, 1936 was the first session of INC held in a village.

Which of the statements given above is/are correct?

(a) 1, 2 and 3
(b) 2 only
(c) 2 and 3 only
(d) 1 and 3 only

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81. Consider the following statements about e-waste:

1. India is the 2nd largest producer of e-waste after China.
2. More than 95% of this waste is handled by informal sector.
3. It releases harmful chemicals such as lead on burning.

Which of the statements given above is/are correct?

(a) 1 and 2 only
(b) 2 only
(c) 1 and 3 only
(d) 2 and 3 only

82. Cyclone Gulab has turned out to be an interesting case study in weather anomalies. It struck recently at which of the following?

(a) Bay of Bengal
(b) Mediterranean sea
(c) Arabian sea
(d) Red Sea

83. Recently seen in the news, the Renewables Integration in India 2021 report was launched by which of the following institutions?

(a) NITI Aayog and International Energy Agency
(b) Ministry of New and Renewable Energy and Ministry of Environment, Forest and Climate Change
(c) International Solar Alliance and Ministry of Environment, Forest and Climate Change
(d) None of the above

84. With reference to Inter-State Water Disputes Act 1956, consider the following statements:

1. The Act defines 'water disputes' between two or more states.
2. The Act provides for a permanent tribunal to oversee the water disputes and such other regional tribunals as may be required by states.
3. Neither the Supreme Court nor any other court is to have jurisdiction in respect of any water dispute which may be referred to such a tribunal.

Which of the statements given above are correct?

(a) 1 and 2 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

85. Recently seen in the news, Global EV Outlook an annual publication is released by Electric Vehicles Initiative (EVI) and

(a) International Energy Agency
(b) International Renewable Energy Agency
(c) NITI Aayog
(d) United Nations Environment Programme

86. Consider the following statements regarding socially and educationally backward classes (SEBC) in India:

1. The members of National Commission for Backward Classes are appointed by a committee headed by Prime Minister.
2. The central list of SEBC is notified by the President.
3. Only Parliament could make inclusions or exclusions in the central list of SEBC by law.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 and 3 only
(c) 1 and 2 only
(d) 1, 2 and 3

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87. If an animal belonging to the schedule I of Wildlife Protection Act ,1972 turns into a man eater and poses threat to humans, then which of the following authorities is permitted to order for its killing?

(a) Chief Wildlife Warden of the state concerned
(b) Deputy Conservator of Forests of state concerned
(c) Range forest officer of the state concerned
(d) Forest guard of the state concerned

88. Consider the differences between Qubits and Binary bits:

1. Qubits are typically subatomic particles such as electrons or photons, while a bit represents a stream of electrical or optical pulses.
2. While bits can hold only a position of 0 or 1, qubits can hold a superposition of all possible states.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

89. Recently the Dam Safety Act, 2021 received the President's assent. In the context of this development, consider the following statements:

1. The National Committee on Dam Safety shall be constituted every year to formulate policies and regulations regarding dam safety.
2. The act provides for the payment of compensation to people affected by dam projects.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

90. Which of the following changes are being observed in the Arctic region due to climate change?

1. Frequent lightning strikes
2. Extremely Low ocean primary productivity
3. Increased discharge of the Arctic rivers
4. Increased green cover of the tundra biome

Select the correct answer using the code given below.

(a) 1 and 2 only
(b) 1, 3 and 4 only
(c) 3 and 4 only
(d) 1, 2, 3 and 4

91. Consider the following statements:

1. Koala is an herbivorous marsupial, found only in Australia.
2. India has the highest population of Asiatic wild dogs.
3. Golden Langur is endemic to India and Bhutan.

Which of the statement given above is/are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 3 only
(d) 1, 2 and 3

92. Consider the following statements with reference to Western Cyclonic Disturbance:

1. The western cyclonic disturbances generally enter the Indian subcontinent from the west and the northwest during the summer months.
2. A decrease in the prevailing night temperature generally indicates an advance in the arrival of cyclones disturbances.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

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93. Consider the following statements about the Dadni system emerged in Medieval India is/are correct?

1. Under this system, artisans working in state workshops (karkhanas) produced goods for the royal household.
2. The artisans were provided with loans for the large-scale production of crafts.

Select the correct answer using the code given below.

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

94. Consider the following statements regarding Banks Board Bureau:

1. It is an autonomous recommendatory body committed to improving the governance of public sector financial institutions.
2. The bureau recommends the selection and appointment of the Board of Directors in Public Sector Insurance Companies.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

95. Which of the following are the members of New Development Bank (NDB)?

1. India
2. Uruguay
3. Egypt
4. China
5. Bangladesh
6. United Arab Emirates

Select the correct answer using the code given below.

(a) 1 and 4 only
(b) 1, 3, 5 and 6 only
(c) 2, 4, and 5 only
(d) 1, 2, 3, 4, 5 and 6

96. In the context of the modern history of India, the Carlyle Circular was/were

(a) an official order to prevent political gathering at Jallianwala Bagh.
(b) a decree to restrict use of arms by Indians after 1857 revolt.
(c) rules for Indian soldiers framed under General Service Enlistment act, 1856.
(d) instructions to the District Magistrates and Collectors to take stern measures against political activities by students during Swadeshi movement.

97. Arrange the following metals in increasing order of their electrical resistivity.

1. Nickel
2. Chromium
3. Silver
4. Aluminium

Select the correct answer using the code given below.

(a) 3-4-1-2
(b) 1-2-4-3
(c) 2-1-3-4
(d) 2-3-1-4

98. Consider the following statements regarding NaVIC:

1. ISRO has built a total of five satellites in the IRNSS series.
2. It provides Restricted Service (RS) which is an encrypted service provided only to authorized users.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

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99. *He started his career with the railways and the postal department. Afterwards, he joined the Mandavi Textile Mills as Store Keeper in 1870. This mill-life experience provided him ample first-hand exposure to the exploitative nature of factory work, and the miserable living conditions of the mill hands, prompting him to organize them for their basic rights. He also started the newspaper Deenbandhu and set up the Bombay Mill Hands Association.*

Which of the following personalities is being described in the passage given above?

(a) M. N. Roy
(b) Narayan Meghaji Lokhande
(c) K. N. Katju
(d) K. N. Jogalekar

100. In the context of global trade agreement principles, consider the following statements:

1. A Customs Union facilitates the free movement of labor and capital.
2. Early Harvest Schemes are a precursor to Free Trade Agreements (FTA) between two trading partners.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

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ANSWERS & EXPLANATIONS
GENERAL STUDIES (P) TEST – 3500 (2022)

Q 1.D

- The NDC Transport Initiative for Asia (NDC-TIA) aims to facilitate a paradigm shift to zero-emission transport across Asia.
- The program will achieve this shift by supporting **China, India and Vietnam** to develop comprehensive decarbonization strategies and solutions to implement them.
- Beyond the three countries, on the regional and global level, the program will maximize impact by reaching out to additional countries in Southeast Asia, sharing lessons learned, increasing discourse on decarbonizing transport and promoting efficient, multi-stakeholder approaches coordinated between government ministries, civil society, and the private sector.
- This project is part of the **International Climate Initiative (IKI). Hence statement 1 is not correct.**
- NDC–TIA is a joint programme, supported by the International Climate Initiative (IKI) of the German Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and implemented by a consortium of seven organisations, namely:
    - Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
    - International Council on Clean Transportation (ICCT)
    - World Resources Institute (WRI)
    - International Transport Forum (ITF)
    - Agora Verkehrswende (AGORA)
    - Partnership on Sustainable, Low Carbon Transport (SLoCaT) Foundation
    - Renewable Energy Policy Network for the 21st Century e.V. (REN21)
- The India Component is implemented by six consortium organisations, all except SLoCaT. On behalf of the Government of India, NITI Aayog, the country's premier policy think tank, will be the implementing partner.
- **In each partner country, the program supports sectoral contributions to achieve their Nationally Determined Contributions (NDCs) and to raise their ambitions for long-term climate strategies and the 2025 NDC milestone. Hence statement 2 is not correct.**

Q 2.A

- The Provisions of the Panchayats (Extension to the Scheduled Areas) Act, 1996 (PESA) is an important and key legislation to empower the tribal communities. The PESA Act is called "Constitution within the Constitution". The Act aims at devolving governance to Panchayats/Gram Sabhas in Schedule V areas for mainstreaming tribal development.
- **The Ministry of Panchayati Raj is the nodal ministry to implement the PESA Act.**
- **Hence option (a) is the correct answer.**

Q 3.B

- **University Grants Commission**: In pursuance of the recommendation of the **Radhakrishnan Commission (1944-49),** the University Grants Commission was constituted in 1953. The Commission was given autonomous statutory status by an Act of Parliament in 1956.
- An **Education Commission under the Chairmanship of Dr. D. S. Kothari** was appointed by the Government of India in July 1964 to 'advise Government on, the national pattern of education and on the general principles and policies for the development of education at all stages and in all aspects.'
- **Sargeant Plan of Education (1944):**
    - It was worked out by the Central Advisory Board of Education in 1944.
    - It recommended:

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- ✓ **Universal free and compulsory education for children between the ages of 6 and 11. Hence option (b) is the correct answer.**
- ✓ A school course of six years for children between the ages of 11 and 17.
- ✓ Abolition of the Intermediate course and the addition of an extra year each at the high school and the college stage.
- ✓ It envisaged a 40-year educational reconstruction plan for the country, which was reduced to 16 years by **the Kher Committee.**

- **Sir Thomas Raleigh commission** was appointed on 27 January 1902 to enquire into the condition and prospects of universities in India and to recommend proposals for improving their constitution and working. Evidently, the Commission was precluded from reporting on primary or secondary education. **As a result of the report of the recommendations of the Commission the Indian Universities Act was passed in 1904.**
- **In 1917** the Government of India appointed a Commission to study and report on the **problems of Calcutta University. Dr. M.E. Sadler, Vice-Chancellor** of the University of Leeds, was appointed its Chairman.

Q 4.C

- **The popular beaches of Mumbai and Goa in recent times and especially in these passing months are covered in sticky tarballs that gave off a foul fuel smell.** The Brihanmumbai Municipal Corporation (BMC) has removed over 20,000 kg of tarballs from Juhu and Versova beaches in one month.
- Tarballs are dark-coloured, sticky balls of oil that form when crude oil floats on the ocean surface. They are formed by weathering of crude oil in marine environments. They are transported from the open sea to the shores by sea currents and waves. Some of the balls are as big as a basketball while others are smaller globules and can weigh as much as 6-7 kgs. Wind and waves tear the oil slick into smaller patches that are scattered over a much wider area. Various physical, chemical and biological processes (weathering) change the appearance of the oil.
- **Statement 1 is correct:** Both Goan and Mumbai's coast are close to one of the Sea Lines of Communication (SLOC) that is used by ships and international oil tankers coming from the Persian Gulf, which results in oil spills in the Arabian Sea. This oil gets deposited on the western coast and eventually takes the shape of tarballs. It gets pushed to the shore as tarballs during monsoon due to wind speed and direction.
- **Statement 2 is correct:** They vary in size and these balls are extremely sticky and cause irritation to those bathing in the sea or walking along the beach. These get stuck to the skin and are very quite difficult to wash off.

Q 5.C

- The Indian Railways aims to be the driver of India's economic growth and development by being safe, financially viable, and environmentally friendly. It is the largest rail network in Asia and the world's second-largest under one management spanning more than 67,415 km, as of March 2019. **Hence, statement 1 is correct.**
- The FDI Policy permits 100% FDI in the railway's infrastructure sector. FDI is permitted in the construction, operation, and maintenance of the railway transport sector. **Hence, statement 2 is not correct.**
- Indian Railways have prepared a National Rail Plan (NRP) for India – 2030. The Plan is to create a 'future ready' Railway system by 2030. The NRP is aimed to formulate strategies based on both operational capacities and commercial policy initiatives to increase the modal share of the Railways in freight to 45%. **Hence, statement 3 is correct.**

Q 6.B

- **Recently Ministry of Skill Development & Entrepreneurship launched two projects:**
  - **Revival of Namda craft of Kashmir as a special pilot project under Pradhan Mantri Kaushal Vikas Yojana (PMKVY) 3.0**
  - **Upskilling of artisans and weavers of Kashmir under Recognition of Prior Learning (RPL), component of PMKVY.**
- **Namda Art/Craft:** Namda craft **of Kashmir is a rug made of sheep wool through felting technique instead of the normal weaving process. I**t is a felted carpet that features hand embroidered patterns in colored threads. **Hence option (b) is the correct answer.**
  - Namda comes from the root word Namata (Sanskrit for woollen stuff). It is a local term used for felted wool floor coverings made out of coarse variety of wool.

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- It is practiced as a craft in several cultures especially the countries throughout Asia such as Iran, Afghanistan and several places in Ladakh, Kutch and Kashmir and Rajasthan in India.
- The craft is primarily practiced by the **Pinjara and Mansuri communities, Sama Muslims** native to Kachchh.
- In India, it is known to have come from Iran and was actively promoted in the state under the patronage of the Mughal monarchs and the Rajput royals. It is reported to have originated in the 11th century when Mughal Emperor Akbar ordered the making of suitable covering for his horse for protection from the cold.

Q 7.A

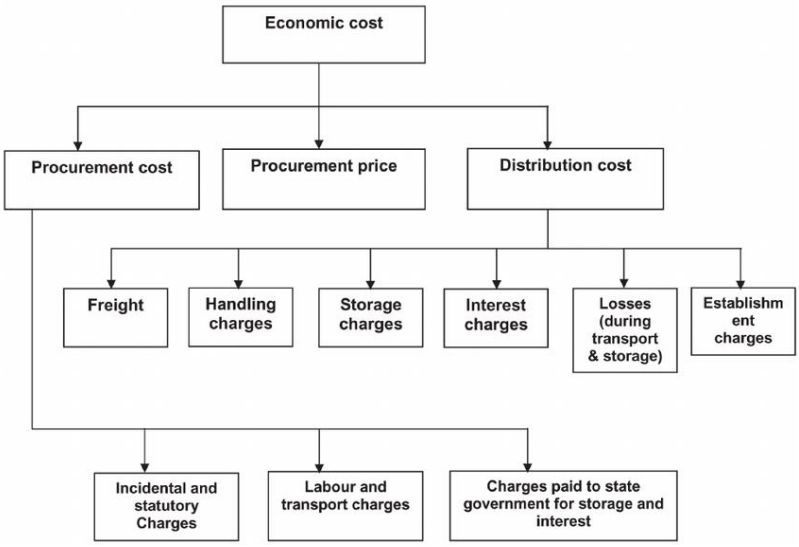
- Mass movements are defined as processes of erosion, transport and accumulation of material that occur on both gentle and steep slopes mainly owing to gravitational forces. **These movements transfer the mass of rock debris down the slopes under the direct influence of gravity. Hence, option (a) is correct.**
- The movements of mass may range from slow to rapid, affecting shallow to deep columns of materials and include creep, flow, slide and fall.
- Gravity exerts its force on all matter, both bedrock and the products of weathering. So, **weathering is not a pre-requisite for mass movement** though it aids mass movements. **Mass movements are very active over weathered slopes rather than over unweathered materials.**
- Mass movements are aided by gravity and **no geomorphic agent like running water, glaciers, wind, waves and currents participate in the process of mass movements**. That means **mass movements do not come under erosion** though there is a shift (aided by gravity) of materials from one place to another.

Q 8.D

- Gateway to Hell is a natural gas crater located near Darvaza in Turkmenistan. It used to be a natural gas field which then collapsed into a cave and became a crater. **Hence, option (d) is correct.**
- The **"Door to Hell" or "Gateway to Hell"** are located about 260 kilometres (160 miles) north of Ashgabat, Turkmenistan's capital. The plot measures 60 metres (190 feet) broad by 20 metres (70 feet) deep. Although the specific reason for the crater's formation is uncertain, it is believed to have happened in 1971 during a Soviet drilling operation.
- The crater is now a popular tourist destination in the country. According to the BBC, it attracts roughly 6,000 tourists each year.
- Recently, Turkmen government has ordered the closure of the burning gas pit. One of the reasons that the Turkmenistan President gave for the order to close the Gateway to Hell is the concern for the environment and health of the people in nearby areas.

Q 9.D

- The cost incurred by the Food Corporation of India (FCI) for the procurement of food grains is referred to as the Economic Cost of Food grains.
- It comprises 3 components – The pooled cost of grains (weighted MSP of stock of food grains), Procurement incidentals (Labour charges, Transport charges, storage cost, etc.), and cost of distribution.



- Hence, any increase in the above components will result in an increase in the economic cost of foodgrains to the Food Corporation of India (FCI). **Hence, option (d) is the correct answer.**

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Q 10.A

- Aqua regia, (Latin for 'royal water') is a freshly prepared **mixture of concentrated hydrochloric acid and concentrated nitric acid in the ratio of 3:1**. **Hence statement 1 is not correct.**
- It can dissolve gold, even though neither of these acids can do so alone. Aqua regia is a highly corrosive, fuming liquid. It is one of the few reagents that is able to dissolve gold and platinum. **Hence statement 2 is correct.**

Q 11.C

- **Green hydrogen** is produced through the water electrolysis process by employing renewable electricity. The reason it is called green is that there is no CO2 emission during the production process. Water electrolysis is a process that uses electricity to decompose water into hydrogen gas and oxygen.
- **Blue hydrogen** is sourced from fossil fuels. However, the CO2 is captured and stored underground (carbon sequestration). Companies are also trying to utilize the captured carbon called carbon capture, storage, and utilization (CCSU). Utilization is not essential to qualify for blue hydrogen. As no CO2 is emitted, so the blue hydrogen production process is categorized as carbon neutral.
- **Grey hydrogen** is produced from fossil fuel and commonly uses the steam methane reforming (SMR) method. During this process, CO2 is produced and eventually released into the atmosphere. **Hence statement 2 is correct.**
- **Black or brown hydrogen** is produced from coal. The black and brown colors refer to the type bituminous (black) and lignite (brown) coal. The gasification of coal is a method used to produce hydrogen. However, it is a very polluting process, and CO2 and carbon monoxide are produced as by-products and released to the atmosphere.
- **Turquoise hydrogen** can be extracted by using the thermal splitting of methane via methane pyrolysis. The process, though at the experimental stage, remove the carbon in a solid form instead of CO2 gas.
- **Purple hydrogen** is made though using nuclear power and heat through combined chemo thermal electrolysis splitting of water.
- **Pink hydrogen** is generated through the electrolysis of water by using electricity from a nuclear power plant.
- **Red hydrogen** is produced through the high-temperature catalytic splitting of water using nuclear power thermal as an energy source.
- **White hydrogen** refers to naturally occurring hydrogen found in geological deposits. **Hence statement 1 is correct.**

Q 12.C

- **Magadhan supremacy reached its zenith during the Mauryan rule.** A study of the Arthasastra in conjunction with the edicts provides information regarding the administrative structure. The king was at the centre of the structure and had the power to enact laws. He is provided by the council of ministers for advice. According to the Arthashastra central administration was conducted by highly skilled Superintendents or Adhyakshas who looked after various departments like **Akshapataladhyaksha was the Accountant-General** who was in charge of the two offices of currency and accounts, **Akaradhyaksha was the superintendent of mining**, **Navadhyaksha was the Superintendent of Ports** etc. Further, **Sannidhata was the treasurer** responsible for the storage of royal treasure, and of the state income both in cash and kind. **Samaharta** was in charge of the collection of revenue from various parts of the kingdom.
- **Due to the development of trade and commerce, there was an increase in the use of currency, which began in the earlier period and became a fairly common feature of the Maurya period.**
- **Kautilya refers to various state officers in charge of coinage such as the Rupadarsaka, the Suvarnadhyaksa, and the Laksanadhyaksa. Money was used for different purposes like trade, payments to government officers in cash, etc** The punch-marked silver coins, which carry the symbols of the peacock, and the hill and crescent, called pana, formed the imperial currency of the Mauryas. Copper punch-marked coins were rare. Copper Masika was the token currency and the quarter pieces of Masika were called Kakini.
- **Hence option (c) is the correct answer.**

Q 13.D

- The National Legal Services Authority **(NALSA) has been constituted under the Legal Services Authorities Act, 1987 to provide free Legal Services to the weaker sections of the society**. The Chief Justice of India is the Patron-in-Chief and the Senior most Hon'ble Judge, Supreme Court of India is the Executive Chairman of the Authority.

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- The sections of the society as enlisted under Section 12 of the Legal Services Authorities Act are entitled for free legal services, they are:
  - **A member of a Scheduled Caste or Scheduled Tribe; Hence option 1 is correct.**
  - A victim of trafficking in human beings or begar as referred to in Article 23 of the Constitution;
  - **A woman or a child; Hence option 2 is correct.**
  - **A mentally ill or otherwise disabled person; Hence statement 6 is correct.**
  - **A person under circumstances of undeserved want such as being a victim of a mass disaster, ethnic violence, caste atrocity, flood, drought, earthquake or industrial disaster; Hence options 4 and 5 are correct.**
  - An industrial workman;
  - **A woman is entitled for free legal aid irrespective of her income or financial status. Hence option 3 is correct.**
  - A child is eligible for free legal aid till the age of majority i.e. 18 years.

Q 14.D

- **Rama Raya**, known as "Aliya" was a statesman of the Vijayanagara Empire. He was the **son-in-law** of the great emperor of the Vijaynagar empire Krishna Deva Raya and the **progenitor of the Aravidu dynasty of Vijayanagar Empire**, the fourth and last dynasty of the empire.
- The death of Krishna Deva Raya was followed by a struggle for succession among his relations. He was succeeded in 1529 by his younger brother **Achyuta Deva Raya**, upon whose demise in 1542, the throne devolved upon his nephew Sadasiva Raya who was minor at the time of ascendence to the throne. As regent, Rama Raya was the de facto ruler of the empire from 1542 to 1565, although legally the emperor during this period was Sadasiva Raya.
- Aliya Rama Raja also patronized many poets, including **Bhattu Murti,** who **became famous by the name Rama Raja Bhushanudu**, after his patron. He wrote the Kaavya-alankaara Sangrahamu and dedicated it to Rama Raja's nephew, Narasa Raja, who was the chief of Peddamudiyam, an ancient historic village in what is now Kadapa district, Andhra Pradesh. Later, the poet wrote a long poem in Telugu, the Vasu Charitra, and dedicated it to Tirumala Raya.
- Rama Raya was the contemporary of Deccan Sultans Ali Adil Shah of Bijapur, Ibrahim Qutub Shah of Golconda. He led the defense of the Vijayanagara Empire against the invading army of Deccan Sultans: Husain Nizam Shah, Ali Adil Shah, and Ibrahim Qutb Shah in the battle of Talikota and got killed. Ultimately**, the Battle of Talikota (1565) brought about the fated decline of the Vijayanagara kingdom.**
- **Hence option (d) is the correct answer.**

Q 15.D

- **Recent Context: The Insolvency Law Committee constituted by the Ministry of Corporate Affairs has recommended that India adopt the UNCITRAL Model Law on Cross Border Insolvency with certain modifications.**
- Cross border insolvency signifies circumstances in which an insolvent debtor has assets and/or creditors in more than one country.
- At present, the Insolvency and Bankruptcy Code, 2016 (IBC) provides for the domestic laws for the handling of an insolvent enterprise.
- IBC at present has no standard instrument to restructure the firms involving cross border jurisdictions.
- Presently, while foreign creditors can make claims against a domestic company, **the IBC currently does not allow for automatic recognition of any insolvency proceedings in other countries. Hence statement 2 is not correct.**
- Cross border insolvency is regulated by Section 234 and 235 of IBC. Section 234 empowers the Central Government to enter into bilateral agreements with other countries to resolve situations about cross-border insolvency.
- **India has not adopted the United Nations Commission on International Trade Law (UNCITRAL) Model Law on Cross-Border Insolvency of 1997. Hence statement 1 is not correct.**
- It has been adopted by 49 countries until now, such as Singapore, the UK, USA, South Africa, Korea, etc.

Q 16.D

- Article 19(1) (a) of the Constitution of India states that, "all citizens shall have the right to freedom of speech and expression". The main elements of right to freedom of speech and expression are as under-
  - This right is available only to a citizen of India and not to foreign nationals.

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- The freedom of speech under Article 19(1) (a) includes the right to express one's views and opinions at any issue through any medium, e.g. by words of mouth, writing, printing, picture, film, movie etc.
- This right is, however, not absolute and it allows Government to frame laws to impose reasonable restrictions in the interest of sovereignty and integrity of India, security of the state, friendly relations with foreign states, public order, decency and morality and contempt of court, defamation and incitement to an offence.
- This restriction on the freedom of speech of any citizen may be imposed as much by an action of the State as by its inaction. Thus, failure on the part of the State to guarantee to all its citizens the fundamental right to freedom of speech and expression would also constitute a violation of Article 19(1)(a).

- Over the years, judicial creativity, judicial wisdom and judicial craftsmanship have widened the scope of freedom of speech & expression by including in it the following aspects:
  - **Freedom of Press**-Democracy can thrive through vigilant eye of Legislature but also care and guidance of public opinion and press par excellence.
  - **Freedom of Commercial speech**- In Tata Press Ltd. Vs. Mahanagar Telephone Nigam Ltd., the Supreme Court held that a commercial advertisement or commercial speech was also a part of the freedom of speech and expression. **Hence statement 1 is correct.**
  - **Right to Broadcast**- The concept speech and expression has evolved with the progress of technology and include all available means of expression and communication. This would include the electronic and the broadcast media. **Hence statement 2 is correct**.
  - **Right to information**- The freedom of 'speech and expression' comprises not only the right to express, publish and propagate information, it circulation but also to receive information.
  - **Right to criticize**- In S. Rangarajan v/s P. Jagjivan Ram, everyone has a fundamental right to form his opinion on any issues of general concern. Open criticism of government policies and operations is not a ground for restricting expression. Intolerance is as much dangerous to democracy as to the person himself. **Hence statement 3 is correct.**
  - **Right to expression beyond national boundaries**- In Maneka Gandhi vs Union of India, the Supreme Court considered whether Article 19(1)(a) of Indian Constitution was confined to Indian territory and held that the freedom of speech and expression is not confined to National boundaries. **Hence statement 4 is correct.**
  - **Right not to speak or Right to silence is also included in the Right to speech and expression.**

Q 17.D

- **Microfinance** is a form of financial service which provides small loans and other financial services to poor and low-income households. The Indian microfinance sector has witnessed phenomenal growth over the past two decades in terms of an increase in both the number of institutions providing microfinance as also the quantum of credit made available to the microfinance customers. **Microcredit** is delivered through a variety of institutional channels viz.,
  - **Scheduled Commercial Banks (SCBs) (40.99%). Hence option (d) is the correct answer.**
  - **Non-Banking Financial Companies registered as Micro Finance Institutions (NBFC-MFIs) (30.80%).**
  - Small Financial Banks (SFBs) - 18.73%
  - NBFCs - 8.71%
  - Non-Profit MFIs - 0.78%
- An **NBFC-MFI has been defined as a non-deposit taking NBFC with a minimum net owned fund of ₹5 crores** (₹2 crores for NBFC-MFIs registered in the North Eastern Region) and having a minimum of 85 percent of its net assets (assets other than cash, bank balances and money market instruments) in the nature of 'qualifying assets'.
- In order to be classified as a 'qualifying asset', a loan is required to satisfy the criteria such as:
  - **The loan which is disbursed to a borrower with household annual income not exceeding ₹1,25,000 and ₹2,00,000** for rural and urban/semi-urban households respectively;
  - The loan amount does not exceed ₹75,000 in the first cycle and ₹1,25,000 in subsequent cycles;
  - Minimum tenure of 24 months for loan amount exceeding ₹30,000 etc.
- Based on the recommendations of the **Malegam Committee,** RBI introduced a comprehensive regulatory framework in 2011. It has been put in place with the objective of making credit available to low-income households in a transparent manner while ensuring borrowers' protection from any sharp practices adopted by the lenders. However, this **framework is applicable only to 30 percent of the microfinance loan portfolio.**
- The emerging dynamics in the microfinance sector as well as the concerns of customer protection call for a review of the regulations so that all the regulated entities (REs) engaged in microfinance pursue the goal

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of customer protection within a well-calibrated and harmonized set-up. Recently, the RBI, therefore, proposed a uniform set of rules for microloans. It is proposed to revise the definition of microfinance loans as also the limits applicable to such loans. Further, to avoid over-indebtedness and multiple lending, it is proposed to apply these regulations to all REs of RBI operating in the microfinance sector.

Q 18.A

- Article 138 of the Constitution of India empowers the Parliament to increase the jurisdiction and powers of the Supreme Court with respect to any of the matters in the Union List. **Hence statement 1 is correct.**
- The Parliament is not authorized to curtail the jurisdiction and powers of the Supreme Court.
- The declaration of National Emergency affects the rights of individuals and the autonomy of the states as it confers wide powers on Centre to handle special situations. However, even during the national emergency, jurisdiction and powers of the Supreme Court cannot be curtailed. **Hence statement 2 is not correct.**

Q 19.B

- Recently, the government approved the equity infusion of Rs 1,500 crore in Indian Renewable Energy Development Agency (IREDA) to enable it to lend Rs 12,000 crore to green energy projects.
- Indian Renewable Energy Development Agency Limited (IREDA) is a **Mini Ratna (Category – I) Government of India Enterprise. Hence statement 1 is not correct.**
- **It works under the administrative control of the Ministry of New and Renewable Energy (MNRE). Hence statement 3 is correct.**
- IREDA is a Public Limited Government Company established as a Non-Banking Financial Institution in 1987 engaged in promoting, developing and extending financial assistance for setting up projects relating to new and renewable sources of energy and energy efficiency/conservation with the motto: "ENERGY FOR EVER"
- IREDA has been notified as a "Public Financial Institution" under section 4 'A' of the Companies Act, 1956 and registered as a Non-Banking Financial Company (NFBC) with Reserve Bank of India (RBI).
- One of its main objectives is The main objectives of IREDA is to give **financial support to specific projects and schemes for generating electricity and/or energy through new and renewable sources and conserving energy through energy efficiency. Hence statement 2 is correct.**

Q 20.C

- **A Sovereign Wealth Fund (SWF) is a State (Government) owned investment fund** or entity that is commonly established from export surpluses, fiscal surpluses, proceeds from privatization etc. Countries generally create SWFs to diversify their revenue streams to protect and stabilize the budget and economy from excess volatility. **Hence, statement 1 is correct.**
- **An SWF's primary objective is to generate good returns over a long-term duration.** Furthermore, SWFs are formed with the intent to protect and stabilise the budget and economy at times when the revenues and exports are excessively volatile. The SWFs ensure the long-term growth of the capital and diversifying the export of non-renewable commodities. **Hence, statement 2 is not correct and statement 3 is correct.**
- Singapore's Government Investment Corporation (GIC) is known to be the first SWF; it was established in the year 1981.The operating principles for SWFs were framed in 2008 to ensure that funds would act for economic growth. Santiago principles are laid down which dictates that a sovereign wealth fund must compulsorily invest for good returns and has a transparent structure.
- National Investment and Infrastructure Fund is India's first infrastructure specific investment fund or a sovereign wealth fund that was set up by the Government of India in February 2015. As per the latest data, NIIF manages funds of over USD 3.4 billion.

Q 21.C

- **Primary Cooperative Banks (PCBs), also referred to as Urban Cooperative Banks (UCBs), cater to the financial needs of customers in urban and semi-urban areas. Hence, statement 1 is not correct.**
- UCBs are primarily registered as cooperative societies under the provisions of either the State Cooperative Societies Act of the State concerned or the Multi State Cooperative Societies Act, 2002 if the area of operation of the bank extends beyond the boundaries of one state.
- UCBs are supervised under the Registrar of Cooperative Societies. However, **the power to issue banking licenses and regulate, supervise and develop banking functions of UCBs are vested with the RBI by virtue of the Banking Regulation (BR) Act, 1949. Hence, statement 2 is not correct.**

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- In light of the BR Amendment Act of 2020, the RBI's 2022 notification specifies that UCBs can raise capital through three broad methods, viz:- issuance of equity shares, preference shares, and debt instruments. **UCBs can raise funds by issue of equity to enrolled members within the area of operation or through additional equity shares to existing members. Hence, statement 3 is correct.**

Q 22.B

- The procedure in cases of criminal contempt of court, which means the publication of material that scandalises or lowers the dignity of the court or prejudices or interferes with the proceedings of the court, the consent of the Attorney General is required under the law. The objective behind requiring the consent of the Attorney General (AG) before taking cognizance of a complaint is to save the time of the court. Judicial time is squandered if frivolous petitions are made and the court is the first forum for bringing them in. The AG's consent is meant to be a safeguard against frivolous petitions, as it is deemed that the AG, as an officer of the court, will independently ascertain whether the complaint is indeed valid.
- The Contempt of Courts Act, 1971, lays down the law on contempt of court. Section 15 of the legislation describes the procedure on how a case for contempt of court can be initiate**d. In the case of the Supreme Court, the Attorney General or the Solicitor General, and in the case of High Courts, the Advocate General, may bring in a motion before the court for initiating a case of criminal contempt.** However, if the motion is brought by any other person, the consent in writing of the Attorney General or the Advocate General is required. **Hence, statement 3 is not correct.**
- **The AG's consent is mandatory when a private citizen wants to initiate a case of contempt of court against a person.** Before such a plea can be filed, the Attorney General must sign off on the complaint, determining if it requires the attention of the court at all. **Hence, statement 1 is correct.**
- **Article 129 of the Constitution gives the Supreme Court the power to initiate contempt cases on its own,** independent of the motion brought before it by the AG or with the consent of the AG. "The Supreme Court shall be a court of record and shall have all the powers of such a court including the power to punish for contempt of itself," Article 129 states. **Hence, statement 2 is correct.**

Q 23.B

- Global Forest Watch (GFW) is an online platform that provides data and tools for monitoring forests. By harnessing cutting-edge technology, GFW allows anyone to access near real-time information about where and how forests are changing around the world.
- **The World Resources Institute (WRI)** established Global Forest Watch in 1997 as a part of Forest Frontiers Initiative. It starts as network of NGOs producing up to date reports about state of forest report in four pilot countries: Cameroon, Canada, Gabon and Indonesia and gradually expanded to other countries. **In 2014, WRI launched GFW 2.0**, building on nearly two decades of work to create a fully interactive online platform with Forest monitoring data of whole of the world.
- **Hence option (b) is the correct answer.**

Q 24.C

- **Article 343 of the Constitution of India** states that the official language of the Union shall be **Hindi in Devanagari script** and the form of numerals to be used for the official purposes of the Union shall be the international form of Indian numerals.
- **Article 348 (1) of the Constitution of India** provides that all **proceedings in the Supreme Court and in every High court shall be in English Language** until Parliament by law otherwise provides. **Hence statement 1 is correct.**
- **Article 351 of the Constitution of India** states that it shall be the **duty of the Union to promote the spread of the Hindi language,** to develop it so that it may serve as a medium of expression for all the elements of the composite culture of India. **Hence statement 2 is correct.**

Q 25.B

- **Differences Between Mitochondrial DNA and Nuclear DNA:**
  - **Content: Mitochondrial DNA:** mtDNA consists of the mitochondrial genome. Nuclear DNA: nDNA consists of the cell's genome, including the mitochondrial DNA.
  - **DNA Structure: Mitochondrial DNA: mtDNA is double-stranded and circular. Nuclear DNA: n-DNA is double-stranded and linear. Hence statement 1 is not correct.**
  - **Number of Chromosomes: mtDNA is arranged into a single chromosome. and nDNA is arranged into several chromosomes. For example, human n-DNA is arranged into 46 chromosomes.**
  - **Rate of Mutations:** Mitochondrial DNA: The rate of mutations in mtDNA is comparatively high. Nuclear DNA: The rate of mutations in n-DNA is low. **Hence statement 2 is correct.**

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Q 26.C

- **The Limited Liability Partnership Act, 2008 defines a Limited Liability Partnership** as, "A corporate business vehicle that enables professional expertise and entrepreneurial initiative to combine and operate in a flexible, innovative and efficient manner, providing benefits of limited liability while allowing its members the flexibility for organizing their internal structure as a partnership". Companies Act, 2013 applies to Limited Liability Partnership incorporated under the Limited Liability Partnership Act, 2008. However Companies Act does not define the Limited Liability Partnership. **Hence statement 1 is not correct.**
- The Liability of each partner is limited to his share as written in the Agreement filed at the time of the creation of LLP as compared to Partnership Firms which have unlimited liability. The Partners are not liable for the acts of each other and can be held liable only for their own acts as compared to Partnerships wherein they can be held liable for the acts of their partners as well, **They are shielded from joint liabilities created by other partners' wrongful conduct.**
- The only disadvantage of forming an **LLP is that it cannot come out with its IPO** and Raise Money from the Public which a Company form of organization can easily do. **Hence statement 3 is correct**
- **The LLP can continue its existence irrespective of changes in partners.** It is capable of entering into contracts and holding property in its own name. **Hence statement 2 is not correct**

Q 27.A

- **Recently, the West Bengal govt announced the revised relief package for those set to lose land due to the upcoming coal project in Deucha Pachami. Hence statement 1 is correct.**
- The **Deucha-Pachami coal block along with the adjacent Dewanganj-Harinsinga coal block is Asia's largest coal reserve and will soon be the location of the world's second-largest coal mine block. Hence statement 2 is not correct.**
- The Deucha-Pachami coal block, located in West Bengal's Birbhoom district, is spread over 13.7 square km. The seams of coal are trapped between thick layers of basalt. The government estimates peg reserves of coal and basalt in the area to the tune of 1,198 million tonnes of coal and 1,400 million cubic metres of basalt.

Q 28.B

- Ecosystems are generally very inefficient in the use of available energy. This is because of the following reasons:
- **Green plants make use of only about 5% of the solar radiation available to them. Hence statement 1 is not correct.**
- Only a small but variable fraction of the energy available at any particular trophic level is passed on to the next one, the rest is lost during respiration.
- **The animals representing the second trophic level use more energy during respiration, in comparison to plants which represent the first trophic level. Hence statement 2 is correct.**
- The relative loss of energy increases successively with each trophic level (higher). The amount of energy at each trophic level decreases as it moves through an ecosystem. As little as 10 percent of the energy at any trophic level is transferred to the next level; the rest is lost largely through metabolic processes as heat.
- Example- Energy flow studies through an ecosystem were conducted in Silver Spring Florida in 1957 by Odum.
- The study of energy flow through Silver Springs Florida showed that just over 5 % of the energy produced by the primary producers becomes available to the top carnivore.

Q 29.C

- **Recently, NASA's Solar Dynamics Observatory, which watches the Sun constantly, captured an image of the event in which the Sun emitted a significant solar flare.**
- Solar flares are giant explosions on the sun that send energy, light, and high-speed particles into space. **These flares are often associated with solar magnetic storms known as coronal mass ejections (CMEs). Hence statement 1 is correct**
- Radiation is emitted across virtually the entire electromagnetic spectrum, from radio waves at the long-wavelength end, through optical emission to x-ray and gamma rays at the short-wavelength end.
- **Harmful radiation from a flare cannot pass through Earth's atmosphere to physically affect humans on the ground,** however — when intense enough — they can disturb the atmosphere in the layer where GPS and communications signals travel. **Hence statement 2 is correct**

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- They can produce streams of highly energetic particles in the solar wind known as solar particle events. These particles can impact the Earth's magnetosphere. The radiation risks posed by solar flares are a major concern in discussions of a human mission to Mars, the Moon, or other planets.

Q 30.A

- **Shivaji (1627-1680):**
  - Shivaji was born at Shivner in 1627. His father was Shahji Bhonsle and mother Jija Bai. He inherited the jagir of Poona from his father in 1637.
  - In 1674 Shivaji crowned himself at Raigarh and assumed the title Chatrapathi.
  - **Samarth Guru Ramdas** (1608-81 CE) was a **contemporary of Shivaji**.
    - ✓ He was Shivaji's chosen friend, philosopher and guide.
  - Shivaji was as strongly influenced by the ideas of Guru Ramdas as of Sant Tukaram.
- **Maratha administration:**
  - His kingdom consisted of territories known as the swarajya and the mughalai.
    - ✓ In Swarajya his system of administration was implemented, while mughalai territory fell outside the swarajya and was subject to Maratha and other external raids.
  - **Central Government:**
    - ✓ Peshwa- Finance and general administration. Later he became the prime minister.
    - ✓ Sar-i-Naubat or Senapati – Military commander, a honorary post.
    - ✓ Amatya – Accountant General.
    - ✓ Waqenavis – Intelligence, posts and household affairs.
    - ✓ Sachiv – Correspondence.
    - ✓ Sumanta – Master of ceremonies.
  - **Local Government:**
    - ✓ Most of the administrative reforms of Shivaji were based on the practices of the Deccan sultanates.
    - ✓ For the purpose of administrative convenience Shivaji divided his kingdom into four provinces and each was placed under a viceroy.
    - ✓ **Shivaji abolished the system of granting jagirs and started the system of paying officers in cash.**
    - ✓ Patel- village headman
    - ✓ **Deshmukhs and deshpandes- Incharge of group of villages and supervised their functioning.**
      - **None of the officers enjoyed a hereditary status. Hence option (a) is the correct answer.**
  - **The revenue system:**
    - ✓ **The revenue system of Shivaji was based on that of Malik Amber of Ahmadnagar.**
    - ✓ He reduced the powers of the existing deshmuks and kulkarnis. He appointed his own revenue officials called karkuns.
    - ✓ Lands were measured by using the measuring rod called kathi.
    - ✓ Lands were also classified into three categories paddy fields, garden lands and hilly tracks.
    - ✓ **The cultivators were at liberty to pay either in cash or kind, according to his own convenience and will.**
    - ✓ The amount of money to be paid to the state was fixed, which meant that there was not much scope for tax collectors to oppress the peasantry.
    - ✓ **Chauth and sardeshmukhi were the taxes collected** not in the Maratha kingdom but in the neighbouring territories of the Mughal empire or Deccan sultanates.
      - Chauth was one fourth of the land revenue paid to the Marathas in order to avoid the Maratha raids.
      - Sardeshmukhi was an additional levy of ten percent on those lands which the Marathas claimed hereditary rights.

Q 31.C

- The notice for a Short Notice Question should be addressed to the **Secretary-General in the prescribed form available in the Parliamentary Notice Office. Hence statement 1 is not correct.**
- **Brief reasons for asking the question at short notice should invariably be stated at the appropriate place of the form.** Where such reasons are not stated, the notice is returned to the member. A general statement that the matter is of "wide public importance" or "public interest", is not considered adequate for this purpose. **Hence statement 2 is not correct.**
- Besides, being subject to the rules as to the form and content as for ordinary questions, the admissibility of a Short Notice question is judged on two additional criteria; its subject matter must be urgent, and the

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Minister concerned should agree to answer it. Therefore, even if the Minister concerned agrees to answer a Short Notice Question, but the **Speaker is of opinion that the question is not of an urgent nature, the question cannot be admitted as a 'Short Notice Question'. Hence statement 3 is correct.**

Q 32.C

- Lidar, which stands for Light Detection and Ranging, is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth. These light pulses—combined with other data recorded by the airborne system — generate precise, three-dimensional information about the shape of the Earth and its surface characteristics.
- A lidar instrument principally consists of a laser, a scanner, and a specialized GPS receiver. Airplanes and helicopters are the most commonly used platforms for acquiring lidar data over broad areas.
- Two types of lidar are topographic and bathymetric. **Topographic lidar typically uses a near-infrared laser to map the land, while bathymetric lidar uses water-penetrating green light to also measure seafloor and riverbed elevations. Hence both the statements are not correct.**
- Lidar systems allow scientists and mapping professionals to examine both natural and manmade environments with accuracy, precision, and flexibility. NOAA (National Oceanic and Atmospheric Administration, USA) scientists are using lidar to produce more accurate shoreline maps, make digital elevation models for use in geographic information systems, to assist in emergency response operations, and in many other applications.

Q 33.C

- **The LRO Mission**
  - June 18, 2009, an United Launch Alliance Atlas V rocket roared off the launch pad at Launch Complex 41 to begin the Lunar Reconnaissance Orbiter and Lunar Crater Observation and Sensing Satellite missions to the moon. **LRO entered lunar orbit on June 23, 2009 and after spacecraft commissioning, the Exploration Mission began on September 15, 2009.**
  - The Exploration Mission was **focused on supporting the extension of human presence in the solar system, LRO continues to help identify sites close to potential resources with high scientific value, favorable terrain and the environment necessary for safe future robotic and human lunar missions.**
  - The dual role of LRO as an exploration and science mission has proven to be very successful, with important advances in both realms. focusing on contributions across LRO's evolving objectives without attempting to be fully comprehensive. The mission has provided technical innovations and made surprising discoveries that have changed our view of the Moon. The science and exploration measurements will be a legacy of LRO that will be extremely useful to generations of lunar scientists and explorers.
  - **Some of the LRO technical innovations are:**
    - ✓ **First deep space precision orbit determination by laser ranging from Earth. Hence statement 1 is correct.**
    - ✓ **First global thermal mapping of a planetary body covering a full range of local times and seasons. Hence statement 2 is correct.**
    - ✓ First bi-static radar imaging measurements from Earth to a planetary orbite
    - ✓ **First multi-beam laser altimeter system in space. Hence statement 3 is correct.**
    - ✓ More than five years of laser altimetric measurements yielding more than 8 billion topographic points, better than any other object in the solar system
    - ✓ First collimated epithermal neutron detectors in space
    - ✓ First use of tissue-equivalent-plastic (TEP) in deep space radiation detectors.

Q 34.C

- **Neutrino**
  - **Why in news?**
    - ✓ Tamil Nadu has said to the Supreme Court that it does not want the Indian Neutrino Observatory (INO) to be set up in a sensitive ecological zone in the Western Ghats at a great cost to wildlife and biodiversity.
  - **What are neutrinos?**
    - ✓ Neutrinos are fundamental particles, meaning one of the types of tiny particles that make up everything. A neutrino is a subatomic particle that is very similar to an electron **but has no electrical charge** and a very small mass, which might even be zero.
    - ✓ In fact, neutrinos are the **most abundant particles with mass in the universe.**

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- ✓ However, another important property about neutrinos is that they don't like to interact much. Even though trillions of neutrinos pass through your body every second, in your entire lifetime only one or two will stop and interact.
- ✓ They **come in three 'flavors' or 'types',** and each flavor is associated with a light elementary particle. They are,
  - Electron-neutrino is associated with the electron;
  - Muon-neutrino with the muon and
  - Tau-neutrino with the tau particle.

- **Are neutrinos safe?**
  - ✓ Yes! Neutrinos are incredibly safe. Most neutrinos pass through matter without ever interacting. They are very small and neutral (they have no charge), so they don't often come into contact with other particles. Neutrinos don't emit radiation or harm the materials they travel through.
- **Do neutrinos travel faster than the speed of light?**
  - ✓ No, they do not. **Hence option (c) is the correct answer.**
- **How do we detect neutrinos?**
  - ✓ Scientists can use many different kinds of materials to detect neutrinos, from mineral oil and dry cleaning fluid to Antarctic ice and water. Because neutrinos are neutral and so small, it is impossible to detect them directly. Because neutrinos interact so rarely, detectors need to be very big and experiments need to run for long periods to take a lot of data.
- **What are neutrino oscillations?**
  - ✓ "Oscillations" refer to the way neutrinos change flavor as they travel. **A neutrino born as one flavor (electron, muon, or tau neutrino) will eventually morph into the other varieties**—and the probability of appearing as a different flavor depends on how far it has gone. Oscillations are a result of quantum mechanics or the weird way things work at very small scales.

Q 35.D

- **Recently, India and France have agreed to start a bilateral space security dialogue.** This will be the third country with which India will be engaged in a space security dialogue. **The other two countries are the United States and Japan**, with such dialogues beginning in 2015 and 2019, respectively. For France, India will be the first Asian country with which it will have such a dialogue.
- One of the major highlights of the dialogue will be protecting space assets like satellites. The rapid growth of counter-space capabilities by China is a serious development that India, France, Japan, and the U.S. have been grappling with.
- Space security is being seen as the new tool of militarisation and would come in handy in near future. So several countries are building over it and the India France space Security dialogue can be the first stepping stone for the nation in this direction.
- **Hence, option (d) is the correct answer.**

Q 36.C

- **The President of the USA has the constitutional right to pardon or commute sentences related to federal crimes**. The USA Supreme Court has held that this power is "granted without limit" and cannot be restricted by Congress.
- **Article 72 of the Constitution of India** states that the President shall have the power to grant pardons, reprieves, respites or remissions of punishment or to suspend, remit or commute the sentence of any person convicted of certain offences. **Hence statement 2 is correct.**
- **Unlike the US President, whose powers to grant pardons are almost unfettered, the President of India has to act on the advice of the Cabinet. Hence statement 1 is correct.**
- Although the Indian President is bound by the Cabinet's advice, Article 74(1) of the Constitution of India empowers him to return it for reconsideration once. If the Council of Ministers decides against any change, the President has no option but to accept it.

Q 37.D

- A secular state is said to be the one where there is no official religion followed.
- Article 25 provides for Freedom of conscience and free profession, practice and propagation of religion. **Conversion is not provided as a Fundamental Right in the Constitution and therefore it doesn't come under right to religion. Hence, option (a) is not correct.**
- In pre-independent India, religion was a basis for reservation of seats in the state legislature under the communal representation provided by the colonial British Government. However, in independent India,

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the Constitution does not provide for the reservation of seats in the legislature on the basis of religion if that community is not adequately represented. **Hence option (b) is not correct.**

- The Constitution provides for positive secularism wherein the state can promote and maintain all religions. **However, patronizing and supporting any religion by the state is prohibited. Hence option (c) is not correct.**
- Article 28 provides for the Freedom as to attendance at religious instruction or religious worship in certain educational institutions. An educational institution established under any religious endowment and administered by the state has the freedom to impart religious instruction within its premises. **Hence option (d) is correct.**

Q 38.D

- **Khaibar-buster:**
  - **Why in news?**
    - ✓ Iran unveiled a new missile with a reported range that would allow it to reach both US bases in the region as well as targets inside its archfoe Israel.
    - ✓ **Iran has unveiled a new missile- 'Khaibar-buster'** that is capable of hitting nearby US bases and targets within its arch-enemy Israel. **Hence option (d) is the correct answer.**
    - ✓ Khaibar-buster is a reference to a Jewish castle overrun by Muslim warriors in the early days of Islam.
    - ✓ It has a range of 900 miles and runs on solid fuel.
    - ✓ Iran has the largest arsenal of missiles in the Middle East.

Q 39.B

- **According to Article 244(1)**, the provisions of the **Fifth Schedule** shall apply to the administration and control of the Scheduled Areas and Scheduled Tribes in any states other than the four NorthEastern states of Assam, Meghalaya, Tripura and Mizoram. These Scheduled Areas are predominantly inhabited by tribes specified as "Scheduled Tribes" and located in the states of **Andhra Pradesh, Telangana, Bihar, Chhattisgarh, Gujarat, Himachal Pradesh, Madhya Pradesh, Jharkhand, Maharashtra, Orissa and Rajasthan. Hence, statement 1 is not correct.**
- Whereas, as per **Article 244(2),** the tribal-dominated areas in the above four States of **Assam, Meghalaya, Tripura and Mizoram** are to be administered separately under the Sixth Schedule of the Constitution.
- Under Article 244 and the Sixth Schedule, these areas are specified as "Tribal Areas" which are technically different from the "Scheduled Areas" under the Fifth Schedule.
- **Under the provisions of the Fifth Schedule, the President is the authority to declare any area as a Scheduled Area** or renounce a Scheduled Area or part of a Scheduled Area as a non-Scheduled Area **in consultation with the Governor of the concerned State. Hence, statement 2 is correct.**
- **Under the provision of the Sixth Schedule, the Governor of the State is empowered to determine the area or areas as administrative units of the Autonomous Districts and Autonomous Regions.** The Governor has the power to create a new Autonomous District/Region or alter the territorial jurisdiction or the name of any Autonomous District or Autonomous Regions. **Hence, statement 3 is correct**

Q 40.A

- **The Climate Finance Leadership Initiative (CFLI) India partnership was launched at the 11th UK-India Economic and Financial Dialogue by both sides.** It aims to work with financial institutions, corporates, and existing sustainable finance initiatives to accelerate efforts to mobilise capital into India. **Hence, statement 2 is not correct.**
- The aim of the CFLI India project is to drive capital into India through public-private collaboration to unlock private climate finance in support of India's energy transition and help the country meet its 2015 Paris Agreement commitments, which include a pledge to reduce emissions intensity of GDP by 33-35 per cent by 2030. **Hence, statement 1 is correct.**
- The Climate Finance Leadership Initiative is working to eliminate barriers to investment and create market conditions to drive more capital to green projects. CFLI India is a genuinely new approach to mobilising capital at the scale and pace demanded by the global transition to net zero
- **The announcement of CFLI India comes in advance of November's (2021) UN Climate Change Conference – better known as COP26 – in Glasgow (UK).**

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Q 41.C

- GDP is the total final value of goods and services produced within the domestic territory of a country in a specified time period (generally a financial year). The concept of domestic territory (economic territory) is different from the geographical or political territory of a country. Domestic territory of a country includes the following:
  - Political frontiers of the country including its territorial waters.
  - Ships, and aircrafts operated by the residents of the country between two or more countries for example, Air India's services between different countries.
  - Fishing vessels, oil and natural gas rigs and floating platforms operated by the residents of the country in the international waters or engaged in extraction in areas where the country has exclusive rights of operation.
  - Embassies, consulates and military establishments of the country located in other countries, for example, Indian embassy in U.S.A., Japan etc. **It excludes all embassies, consulates and military establishments of other countries and offices of international organisations located in India.**
- GNP and GDP both reflect the national output and income of an economy. The main difference

GDP Gross Domestic Product	GNP Gross National Product	GNI Gross National Income
Value of national output produced in a country. - National income - National output - National expenditure	GNP = GDP + net property income from abroad.	Similar to GNP - Sum value of output by resident producers + net receipts of primary income from abroad + any product taxes (less subsidies) not included in the valuation of output.
Includes income of foreign multinationals	Excludes income earnt by multinational when profit is sent back to other country	A country which earns positive net income on FDI will include in GNI, but not GDP

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- Transfer payments include Social Security, Medicare, unemployment insurance, welfare programs, and subsidies. **These are not included in GDP because they are not payments for goods or services**, but rather means of allocating money to achieve social ends.
- **Hence, option (c) is the correct answer.**

Q 42.B

- The Jain scholars made the first foray into the Kannada literature. The Kannada language has many great scholars but the 'ratnatraya' or 'three gems' were unparalleled. The three gems consisted of:
  - Pampa
  - Ponna
  - Ranna
- **Pampa is known as the ' father of Kannada' as well as 'Adikavi'.** Pampa who was renowned for his mastery over the rasa involved in the poetic compositions **was attached to the court of Chalukya king "Arikesari". Hence statement 1 is not correct.**
- The two of the greatest works of Pampa are the **Adipurana(in which Jain teaching and tenets are expounded)** and **Vikramarjuna Vijaya** (which is a narration of Mahabharata in a distinctive style, in which he glorifies Arjuna as the hero of the epic). He also made use of a veiled allegory in the personality of Arjuna to glorify his patron king, Arikesari of Vemulavada. **Hence statement 2 is correct.**
- **Ponna was attached to the court of Rashtrakuta king Krishna III**. He wrote Bhuvanaikaramabhyudaya and Shantipurana. **Ranna** wrote Gadayuddha, a classic which depicts the duel between Bhima and Duryodhana in an effective style.

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Q 43.B

- **Hence option (b) is the correct answer.**

Q 44.B

- The Minamata Convention on Mercury is a multilateral environmental agreement that addresses specific human activities which are contributing to widespread mercury pollution.
- The Minamata Convention requires that party nations:
- **Reduce and where feasible eliminate the use and release of mercury from artisanal and small-scale gold mining (ASGM). Hence statement 1 is not correct.**
- **Control mercury air emissions from coal-fired power plants, coal-fired industrial boilers, certain non-ferrous metals production operations, waste incineration and cement production. Hence statement 2 is correct.**
- Phase-out or take measures to reduce mercury use in certain products such as batteries, switches, lights, cosmetics, pesticides and measuring devices, and create initiatives to reduce the use of mercury in dental amalgam.
- Phase out or reduce the use of mercury in manufacturing processes such as chlor-alkali production, vinyl chloride monomer production, and acetaldehyde production.
- In addition, the Convention addresses the supply and trade of mercury; safer storage and disposal, and strategies to address contaminated sites.
- The Convention includes provisions for technical assistance, information exchange, public awareness, and research and monitoring.
- It also requires Parties to report on measures taken to implement certain provisions.
- The Convention will be periodically evaluated to assess its effectiveness at meeting its objective of protecting human health and the environment from mercury pollution.

Q 45.A

- **Recent context: Global Network against Food Crises has recently released 'Global Report on Food Crises'.**
  - The report provides estimates for populations in countries/territories based on the Integrated Food Security Phase Classification (IPC) and comparable sources.

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  - The report focuses on 55 countries that account for 97% of humanitarian assistance.
- **Global Network against Food Crises was founded by the European Union, Food and Agriculture Organization (FAO) and World Food Programme (WFP) at the 2016 World Humanitarian Summit. Hence, statement 1 is correct.**
- Global Network against Food Crises seeks to
  - Reduce vulnerabilities associated with acute hunger
  - Achieve food security and improved nutrition
  - Promote sustainable agriculture and food systems
- **The Global Hunger Index (GHI) is a tool that measures and tracks hunger globally as well as by region and by country, prepared by European NGOs of Concern Worldwide and Welthungerhilfe. Hence, statement 2 is not correct.**

Q 46.C

- **The marginal propensity to import (MPM) is the amount imports increase or decrease with each unit rise or decline in disposable income. Hence, option (c) is the correct answer.**
- Nations that consume more imports as their population's income increases have a significant impact on global trade. Developed economies with sufficient natural resources within their borders typically have a lower MPM than developing countries without these resources.
- An economy with a positive marginal propensity to consume (MPC) is likely to have a positive MPM because a portion of goods consumed is likely to come from abroad.
- MPM is easy to measure and functions as a useful tool to predict changes in imports based on expected changes in output.

Q 47.C

- **Sabz Burj has been conserved and restored over the last 4 years using traditional materials and building-craft techniques favored by 16th-century craftsmen.**
- Built-in 1530, Sabz Burj **is one of the earliest Mughal-era monuments in Delhi.** The **tomb does not have any markings pointing to the identity of those buried under it.**
- However, it is of immense significance due to the **ceiling on its double-dome structure painted in pure gold and lapis**, which is the earliest surviving painted ceiling for any monument in India.
- The painting on the ceiling that has floral motifs predates similar work that was seen in miniature paintings and textiles from the Mughal era.
- **Hence option (c) is the correct answer.**

Q 48.D

- The basic concept of a hydroponic farm is that water is substituted for soil. Solutions are then added to the water to provide easily accessed nutrients for a healthy yield. The nutrients added to the water may include phosphorus, nitrogen, calcium, potassium, and many more, depending on the plants being grown. There are many advantages to a hydroponic vegetable garden. They can help solve problems without excessive use of space or water, are known to produce vegetables with high nutrient content, and produce vegetables faster than traditional growing methods.
- **Statement 1 is correct:** It requires far less space than plants grown in soil. Depending on the system, when hydroponics are combined with vertical farming techniques, they can use up to 99 percent fewer lands than typical farming techniques. The reason for the smaller footprint of hydroponic plants is that the roots do not have to spread out to search for nutrients and moisture. Water and nutrients are delivered to the roots directly.
- **Statement 2 is correct:** Hydroponic plants can grow with up to 98% less water than traditional growing methods. It use less water than growing the same plants in soil. Of the water taken in through a plant's roots, only about 0.1% of the water taken in is actually used by the plant itself. Most are then released into the air through evapotranspiration. Hydroponics systems make use of recirculated water, allowing plants to absorb what they need, then return the rest to the system.
- **Statement 3 is correct:** Plants grown in traditional methods must take their nutrients from the soil, which can be a slow process. What nutrients they absorb are often wasted through the maturing process. With hydroponics, nutrients are more easily available for the plant to absorb And can grow 30-50% faster than a plant grown in soil.

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Q 49.A

- **The Akal Takht ("Throne of the Timeless One") is one of five takhts (seats of power) of the Sikhs.** It is located in the Darbar Sahib (Golden Temple) complex in Amritsar, Punjab, India. **The Akal Takht (originally called Akal Bunga) was built by Shri Guru Hargobind Ji** as a place of justice and consideration of temporal issues; the highest seat of earthly authority of the Khalsa (the collective body of the Sikhs) and the place of the Jathedar, the highest spokesman of the Sikhs. **Hence pair 1 is correctly matched**
- **Guru Gobind Singh:** He became Guru after the martyrdom of his father Guru Tegh Bahadur. He **created the Khalsa in 1699,** changing the Sikhs into a saint-soldier order for protecting themselves. **Guru Gobind Singh was the last human guru of the Sikhs and passed the authority to Guru Granth Sahib** as the Guru of Sikhs. **Hence pair 2 is correctly matched**
- **Guru Arjan Dev** became the first great martyr in Sikh history when Emperor Jahangir ordered his execution. He is hailed as Shaheedan-de-Sartaj (The crown of martyrs). He completed the construction of Sri Darbar Sahib also known as Golden Temple in Amritsar and **compiled the Adi Granth, the most sacred scripture of Sikhism. Hence pair 4 is correctly matched**
- **Guru Nanak named Guru Angad to succeed him as the Guru for the Sikhs in 1539. Guru Angad, the second Sikh Master, standardized the Gurmukhi script.** Gurmukhi means "from the mouth of the Guru." The Gurmukhi script accomplished something very special. It allowed people to be able to read and pronounce the songs written by Guru Nanak. Up until that point in history, the dialect spoken by Guru Nanak and his contemporaries had no written equivalent. Written languages were reserved for the powerful, the wealthy, and the high-castes. There was no writing or reading based on the common language. **Hence pair 3 is not correctly matched**

Q 50.B

- **Employment elasticity is a measure of the percentage change in employment associated with a 1 percentage point change in economic growth.** The employment elasticity indicates the ability of an economy to generate employment opportunities for its population as per cent of its growth (development) process. **Hence, statement 1 is not correct.**
- An employment elasticity of 1 implies that with every 1 percentage point growth in GDP, employment increases by 1%. **The higher the employment elasticity, the more labor-intensive growth. Hence, statement 2 is correct.**
- A few years back, when India was on high growth trajectory, its growth was jobless growth. Jobless growth means that the high growth in GDP did not accompany a similar growth in employment, resulting in a low Employment Elasticity.
- As a missed opportunity, the extraordinary growth during yesteryears didn't lead to any employment growth at all. For example, between 2004–05 to 2009–10, employment elasticity of India was as low as 0.01, which implies that with every 1 percentage point growth in GDP, employment increased by just one basis point.

Q 51.D

- Used Cooking Oils (UCO) are oils and fats that have been used for cooking or frying in the food processing industry, restaurants, fast foods and at the consumer level, in households.
- UCO must contain only fats, oils, or greases that were previously used for cooking or frying operations.
- UCO is an important source of raw material to produce biodiesel.
- **It is also used for making soap, cosmetics, cooking oil, and animal feed, etc. Hence statement 1 is correct.**
- Biodiesel made from UCO has the following benefits:
  - Cut reliance on imports
  - **Reducing carbon emissions**
  - Help to reach the target of 5% Biodiesel blending
  - Help to divert the unhealthy used oil from the food chain to a more productive purpose
  - **Promotes circular economy**
  - Prevents clogging of drains from discarded UCO. **Hence statement 2 is correct.**
- **Food Safety and Standards Authority of India (FSSAI) in association with the Biodiesel Association of India (BDAI) launched the 'Repurpose Used Cooking Oil (RUCO) project' in 2019. Hence statement 3 is correct.**
  - The project is aimed at purchasing used oils from hoteliers, caterers, snack makers and traders at a reasonable price and converting it into biodiesel at a plant.

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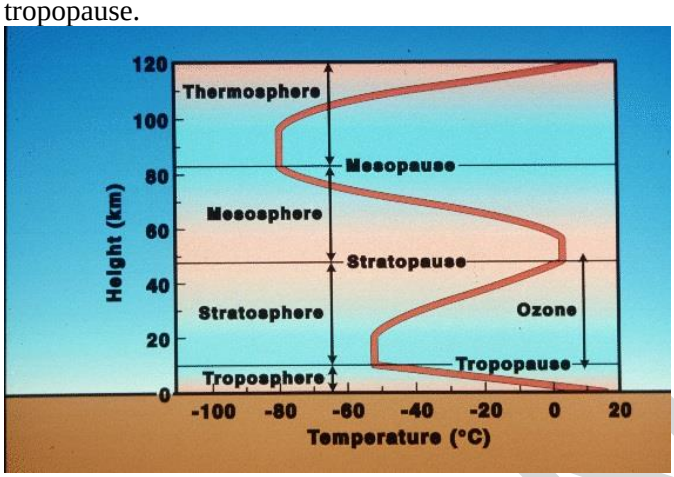
- RUCO sticker and a mobile phone application was launched for the collection of used cooking oil (UCO) to ensure that it does not come back to the ecosystem.

Q 52.C

- **Statement 2 is not correct**: The troposphere is the lowermost layer of the atmosphere. **Its average height is 13 km and extends roughly to a height of 8 km near the poles and about 18 km at the equator.** The thickness of the troposphere is greatest at the equator because heat is transported to great heights by strong convectional currents. This layer contains dust particles and water vapour.
- **Statement 1 is correct**: The zone separating the troposphere from the stratosphere is known as the tropopause. **The air temperature at the tropopause is about minus 80 C over the equator and about minus 45 C over the poles**. This is because the temperature in this layer decreases at the rate of 1°C for every 165 m of height & thickness of the troposphere is greatest at the equator and lowest at the poles.
- **Statement 3 is correct**: The temperature at the tropopause is nearly constant, and hence, it is called the tropopause.



Q 53.B

- Two years after its bifurcation, the Union Territory (UT) of **Ladakh has recently declared the iconic black-necked crane (Grus nigricollis) and snow leopard (Panther unica) as its state bird and animal, respectively.** After the bifurcation of the State, Black-necked Crane is now declared as the state bird of Ladakh as it is found only in Eastern Ladakh.
- **The Jammu and Kashmir Government has declared Kalij Pheasant as a bird of the Union Territory of Jammu and Kashmir.** It is widely found particularly in Mansar, Surinsar, Jasrota, and Bhaderwah areas and is also known as Lophura Leucomelanos.
- **the State bird of Sikkim is the Blood pheasant.** Classification of Blood pheasant. They move their range depending on the seasons and are found at higher elevations during the summer and move to lower elevations during the winter. **Hence pair 4 is not correctly matched.**
- The **Telangana** government has announced the **Palapitta (Indian Roller or Blue Jay)** as the state bird. **Hence pair 1 is not correctly matched.**
- **Hence only pairs 2 and 3 are correctly matched**

Q 54.A

- The incremental capital-output ratio (ICOR) is a frequently used tool that explains the relationship between the level of investment made in the economy and the subsequent increase in the gross domestic product (GDP). ICOR indicates the additional unit of capital or investment needed to produce an additional unit of output.
- ICOR can be calculated as:
  - ICOR=Annual Investment / Annual Increase in GDP
- **ICOR is a metric that assesses the marginal amount of investment capital necessary for a country or other entity to generate the next unit of production. Hence, statement 1 is correct.**
- **A lower ICOR is preferred as it indicates a country's production is more efficient.** Overall, a higher ICOR value is not preferred because it indicates that the entity's production is inefficient. The measure is used predominantly in determining a country's level of production efficiency. **Hence, statement 2 is not correct.**

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Q 55.D

- **Propagation of Earthquake Waves**:
- Different types of earthquake waves travel in different manners.
  - **As they move or propagate, they cause vibration in the body of the rocks through which they pass. P-waves vibrate parallel to the direction of the wave. This exerts pressure on the material in the direction of the propagation. As a result, it creates density differences in the material leading to stretching and squeezing of the material**. **Hence statement 1 is not correct**.
  - The other two waves vibrate perpendicular to the direction of propagation. **The direction of vibrations of S-waves is perpendicular to the wave direction in the vertical plane. Hence, they create troughs and crests in the material through which they pass. Hence statement 2 is not correct.**
  - Surface waves are considered to be the most damaging waves. They travel perpendicular to the plane of wave movement and in whirling form as Love and Raleigh wave.

Q 56.D

- The First Factory Act passed by the Indian Government in 1881 was enacted, as is well known, at the instance of the Lancashire mill owners who brought pressure upon the Government to fight the menace of competition from the Indian Mills who could produce at cheap rates because of cheap labour, lack of strict regulation of working hours or restriction on the employment of women and children, etc.
  - The Lancashire mill owners were interested in getting the hours of work and employment of women and children regulated in order to enhance the cost of production of the Indian mills which had become their competitors. They were not interested as such, in championing the cause of Indian labour. But having lost the battle against their own workers, and being desirous of maintaining the margin of profit as before, they wanted to shift the burden of increasing costs on the producers outside their own country. Hence it was that the success of the working class struggles in England laid the foundation of factory legislation in India. **Hence option (d) is the correct answer.**
- The Lancashire mill owners also demanded the appointment of a commission for investigation into factory conditions**. The first factory commission was appointed in 1875 although the First Factory Act was not passed before 1881.**
- The Factory Act, 1881 **prohibited the employment of children under the age of 7, limited the number of working hours (9 hrs per day) for children** below the age of 12 years and provided that dangerous machinery should be fenced.
- Under similar extraneous pressure from British textile interests, the **Factory Act of 1891** was passed which fixed maximum working hours for women at 11hours per day with a one-and-a-half-hour interval. **However, the working hours for men were left unregulated.**

Q 57.A

- Recently, the National Green Tribunal (NGT) has directed the constitution of a 'Fly Ash Management and Utilisation Mission'.
- **The Mission's primary goal will be to 'coordinate and monitor issues relating to the handling and disposal of fly ash and associated issues.' Hence statement 1 is correct.**
- The Mission is to be jointly headed by the **secretaries, of the Union Ministry of Environment, Forest & Climate Change (MoEF&CC), Union Ministry of Coal and Power and the chief secretaries of Uttar Pradesh and Madhya Pradesh. Hence statement 2 is not correct.**
- The secretary of MoEF&CC will be the nodal agency for coordination and compliance.
- The Mission may also monitor scientific management and utilization of fly ash by power projects outside Singrauli and Sonbhadra, in coordination with chief secretaries of concerned states.

Q 58.B

- **The Diamond Quadrilateral is a project of the Indian railways to establish a high-speed rail network in India**. This quadrilateral will connect the four metro cities in India, i.e. Delhi, Mumbai, Kolkata, and Chennai. **Hence, option (b) is the correct answer.**
- Six corridors on the Diamond Quadrilateral connecting metropolitan cities and growth centres of the country (Delhi, Mumbai, Chennai & Kolkata) have been identified for feasibility studies for high-speed rail connectivity.
- A Special Purpose Vehicle (SPV) namely National High-Speed Rail Corporation Limited (NHSRCL) has been formed to implement this project. This project is targeted for completion by the year 2023.
- This project is similar to Golden Quadrilateral which is a roadway project which connects the four metros by Express Ways.

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Q 59.C

- The **National Calendar of India is based on the Saka Calendar** which is adopted as the official civil calendar beside the Gregorian Calendar.
- The **Saka Era marked the beginning of the Saka Samvat, a historic Hindu calendar that was later adopted as the 'Indian National Calendar' in 1957 on the recommendations of Calendar Reform Committee, an elite team headed by astrophysicist Meghnad Saha, which was appointed in 1952.** The Saka Era is believed to was **founded by King Shalivanhana** of the Shatavahana dynasty. **Hence statement 3 is correct.**
- **The Saka calendar is both lunar and solar with lunar months and solar year. Hence statement 2 is correct**
- The Saka calendar consists of 365 days and 12 months which is similar to the structure of the Gregorian Calendar. **It has the same number of months as the Vikram Samvat i.e 12 months,** however, the months commence in different periods here. It's zero year begins near the vernal equinox of the year 78. Saka Calendar begins on 22nd March every year except in gregorian leap years when it starts on 21st March. **Hence statement 1 is correct**

Q 60.A

- **EDGE is a green building certification system focused on making buildings more resource-efficient. An innovation of International Finance Corporation, a member of the World Bank Group, EDGE ("Excellence in Design for Greater Efficiencies")** provides market leaders with the opportunity to gain a competitive advantage by differentiating their products and adding value to the lives of their customers. EDGE brings speed, market intelligence, and an investment focus to the next generation of green building certification in more than 170 countries. **Hence statement 1 is correct.**
- IFC created EDGE to respond to the need for a measurable and credible solution to prove the business case for building green and unlocking financial investment. EDGE includes a cloud-based platform to calculate the cost of going green and utility savings. **Hence statement 2 is not correct.**
- The state-of-the-art engine has a sophisticated set of city-based climate and cost data, consumption patterns, and algorithms for predicting the most accurate performance results. EDGE is currently funded by the Government of the UK.

Q 61.B

- In 1940s, India was deeply affected by global events like World War–II. One of the indirect outcomes was the outbreak of the Bengal famine, which ravaged the region forcing massive rural migration to cities.
- The humanitarian crisis compelled many artists to reflect on their role in society. In 1943, under the leadership of Prodosh Das Gupta, a sculptor, few young artists formed the **Calcutta Group,** which included Nirode Mazumdar, Paritosh Sen, Gopal Ghose and Rathin Moitra.
  - **The group believed in an art that was universal in character and free from older values.** They did not like the Bengal School of Art as it was too sentimental and deeply interested in the past. **Hence, option (b) is the correct answer.**
  - They wanted their paintings and sculptures to speak of their own times.
  - They started to simplify their visual expression by excluding details. With such an attempt, they could emphasise on elements, material, surface, forms, colours, shades and textures, etc.
- Seeing abject poverty around them and the plight of people in villages and cities, many young artists in Calcutta were drawn to socialism, especially Marxism. This modern philosophy, which was taught by Karl Marx in the mid–nineteenth century in the West, asked important questions about class difference in society and appealed to these artists. They wanted their art to talk about these social problems. Chittoprasad and Somnath Hore, the two political artists of India, found printmaking to be a strong medium to express these social concerns.
- In Bombay, another set of artists formed a group, called **The Progressives** in 1946. It comprised of painters like M. F. Husain and S. H. Raza.
  - They questioned the conventions that had prevailed in art schools.
  - For them, modern art stood for new freedom that could challenge the traditional sense of beauty and morality.
  - However, their experimental works were **focused mainly on the bold portrayal of women** sometimes beyond the socially acceptable standards.

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Q 62.A

- Twenty Point Programme (TPP) was launched in 1975 during the Fifth Five year Plan period (1974-79). **Hence, statement 2 is not correct.**
- The programme was conceived for coordinated and intensive monitoring of a number of schemes implemented by the centre and state governments.
- The basic objective was of improving the quality of life of the people, especially of those living below the poverty line. **Hence statement 1 is correct.**
- The programme was later restructured in 1982, 1986 and in 2006 with a 'direct attack' approach on poverty.

Q 63.A

- **PARIVESH (Pro-Active and Responsive facilitation by Interactive, Virtuous and Environmental Single-window Hub)** is a Single-Window Integrated Environmental Management System, developed in pursuance of the spirit of 'Digital India' and capturing the essence of Minimum Government and Maximum Governance.
- PARIVESH is a **workflow based application, based on the concept of web architecture.**
- The system has been designed, developed and hosted by the **Ministry of Environment, Forest and Climate Change, with technical support from National Informatics Centre, (NIC), New Delhi. Hence statement 1 is correct.**
- It is a **web based, role based workflow application** which has been developed for online submission and monitoring of the proposals submitted by the proponents for seeking **Environment, Forest, Wildlife and Coastal Regulation Zone Clearances from Central, State and district level authorities. Hence statement 2 is correct.**
- It has been rolled out for online submission, monitoring and management of proposals submitted by Project Proponents to the Ministry of Environment, Forest and Climate Change (MOEFCC), as well as to the State Level Environmental Impact Assessment Authorities (SEIAA), to seek various types of clearances (e.g. Environment, Forest, Wildlife and Coastal Regulation Zone Clearances) from **Central, State and district-level authorities. Hence statement 3 is not correct.**

Q 64.C

- **Statement 1 is correct**: As the sun moves between the tropics, in the northern hemisphere, the south-facing slopes of the mountains like the Himalayas and Alps receive more insolation from the sun than the north-facing slopes and vice versa in the case of the southern hemisphere.
- **Statement 2 is correct**: **A föhn or foehn is a type of dry, warm, down-slope wind that occurs in the leeward (downwind side) of a mountain range. Föhn can be initiated when deep low-pressure systems move into Europe, drawing moist Mediterranean air over the Alps**.
- It is a rain shadow wind that results from the subsequent adiabatic warming of air that has dropped most of its moisture on windward slopes (see orographic lift). As a consequence of the different adiabatic lapse rates of moist and dry air, the air on the leeward slopes becomes warmer than equivalent elevations on the windward slopes.
- Föhn winds can raise temperatures by as much as 14 °C (25 °F) in just a matter of hours. Switzerland, southern Germany, and Austria have a warmer climate due to the Föhn, as moist winds off the Mediterranean Sea blow over the Alps. **The leeward side is the north-facing slope of the Alps**.

Q 65.A

- Hedge fund is a private investment partnership and funds pool that uses varied and complex proprietary strategies and invests or trades in complex products, including listed and unlisted derivatives. There is no exact definition to the term "Hedge Fund". Hedge funds are unregistered private investment partnerships, funds or pools that may invest and trade in many different markets, strategies and instruments (including securities, non-securities, and derivatives). **Hence, statement 1 is correct.**
- Put simply, a hedge fund is a pool of money that takes both short and long positions, buys and sells equities, initiates arbitrage, and trades bonds, currencies, convertible securities, commodities, and derivative products to generate returns at reduced risk. As the name suggests, the fund tries to hedge risks to investor's capital against market volatility by employing alternative investment approaches. Hedge funds are sometimes called a 'rich man's mutual fund'.
- These funds work either as private investment partnerships or offshore investment corporations. They are not required to be registered with the securities markets regulator and are not subject to the reporting requirements, including periodic disclosure of NAVs.

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- The term can also be defined by considering the characteristics most commonly associated with hedge funds. Usually, hedge funds:
  - are organized as private investment partnerships or offshore investment corporations.;
  - use a wide variety of trading strategies involving position-taking in a range of markets;
  - employ as an assortment of trading techniques and instruments, often including short-selling, derivatives, and leverage;
  - pay performance fees to their managers, and have an investor base comprising wealthy individuals and institutions and a relatively high minimum investment limit (set at US $100,000 or higher for most funds).
- In many ways, hedge funds are similar to mutual funds. Both entities issue units or securities to investors, hold pools of securities to diversify investment, have professional asset managers and may, at times, have similar investment strategies.
- Mutual funds are registered with securities markets regulator and are subject to the provisions of the relevant regulations such as offer/issue of units/securities, disclosure and reporting requirement, valuation for the purpose of computation of NAV, conflict of interest issue and limit leverage. Hedge funds are not required to be registered and therefore, are not subject to similar regulatory provisions. **Hence, statement 2 is not correct.**

Q 66.C

- **The Congress Socialist Party (CSP) was not a rival political organisation to the Congress but was launched "to work within the Congress, to strengthen it, to mould and shape its policies.** All the same, the Right-wing of Congress labelled Congress Socialists as "internationalists' and thus undependable for the struggle for national liberation. **Hence statement 3 is correct.**
  - The Communists branded the Congress Socialists as Social Fascists and 'fake socialists'. The Congress Socialists hit back by describing the Indian Communists as 'satellites of the U.S.S.R.', as 'social-chauvinists' and charged them 'with betraying socialism and distorting Marxian dialectics'.
  - **Congress socialist party's founder members were: Dr Sampurnanand, Acharya Narendra Dev, Jai Prakash Narayan and Minoo Masani.**
  - It was because of the Socialist pressure that the Congress Election Manifesto of 1936 contained a programme for the removal of the socio-economic grievances of the people.
  - The Congress socialists wanted the Congress to wage a **revolutionary mass struggle for independence**. They supported the Quit India Movement and took a leading part in organising the Revolt of 1942. The CSP was **not in favour of a negotiated settlement for the transfer of power** but advocated the need for a revolutionary struggle to destroy edifices of imperialism, feudalism and communalism in India.
- **Revolutionary Socialist Party (RSP):**
  - It was largely a political manifestation of the Anushilan Samiti or the Liberation Movement in Bengal. It also draws its roots from the Hindustan Socialist Republican Army. **In Ramgarh, Bihar in 1940, the members of the Anushilan Samiti, including the Forward Bloc supremo Netaji Subhas Chandra Bose, met at a historic conference and formed the RSP. Hence statement 2 is not correct.**
  - It stood for the violent overthrow of British imperialism and the establishment of Socialism in India. Ideologically the RSP was closer to CSP than the Communist party.
  - **In the Gandhi-Bose tussle, the RSP supported Subhash Chandra Bose.**
  - The RSP refused to support the allied war effort even after the U.S.S.R. had joined the Allies. The party described the transfer of Power and Partition as a "back-door deal between the treacherous bourgeois leadership of the Congress and Imperialism".
- **The Revolutionary Communist Party** was launched by **Saumyendranath Tagore** in 1942 and the Gandhi-Bose tussle happened in 1939-40 at the Tripuri session of Congress. **Hence statement 1 is not correct.**

Q 67.A

- Supplementary food chains in an ecosystem are formed by **parasites and scavengers. Hence statement 1 is correct.**
- **Parasites can be primary, secondary or higher consumers** that feed on a plant or an animal known as a host, over an extended period of time.
- They usually feed on their host without killing it, at least not immediately as the other consumers do; but cause harm to the host.

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- Parasites that are found inside the body of the host are known as endoparasites.
- In contrast, those such as lice and ticks that are attached to the outside of the body of their host are called ectoparasites.
- Usually, parasitic food chains are highly complicated because of their life cycle patterns.
- The food chains also exist among parasites themselves.
- For example, a parasitic protozoan Leptomonas, in turn, parasitizes fleas that parasitize mammals and birds.
- **Detritus food chains (not supplementary food chains) are present in all ecosystems but dominate in forest ecosystems and shallow water communities. Hence statement 2 is not correct.**

Q 68.A

- **The Indian Press Act, 1910:**
  - The Government sought to strengthen its hands by the Indian Press Act of 1910 which **revived the worst features of Lytton's Press Act of 1878. Hence statement 1 is correct.**
  - The Act empowered the Local Government to demand at the time of Registration security of not less than Rs. 500 and not more than Rs. 2,000 from the keeper of a printing press or publisher of a newspaper and to forfeit the security and annual declaration of Registration of an offending newspaper. The Government could allow fresh Registration and may demand security of not less than Rs. 1,000 and not more than Rs. 10,000 and forfeit the fresh security and annul the fresh declaration of Registration as well as confiscate the Press and all copies of such newspapers, books etc., if the newspapers persisted in publishing objectionable material.
  - The aggrieved party could appeal to **a Special Tribunal of the High Court** against orders of forfeiture within two months. Further, the printer of every newspaper was required to supply to the Government free of charge two copies of each issue of the newspaper published. **Hence statement 2 is not correct.**
  - The Act gave powers to **the Chief Customs Officer** to detain all imported packages which contained objectionable material.
  - In1921 a **Press Committee** was appointed under the chairmanship of **Sir Tej Bahadur Sapru**, then Law Member of the Viceroy's Executive Council, to review the working of press laws. **On the recommendations of the Committee, the Press Acts of 1908 and 1910 were repealed. Hence statement 3 is not correct.**
- **The Indian Press (Emergency Powers) Act, 1931:**
  - The swift turn of the political movement in the thirties and the civil disobedience movement launched by Mahatma Gandhi moved the Government to issue a fresh Press Ordinance in 1930 'to provide for the better control of the Press.'
  - **This Act revived the provisions of the Press Act of 1910.**
  - In 1931 the Government enacted the Indian Press (Emergency Powers) Act which gave sweeping powers to the provincial governments in suppressing the propaganda for the civil disobedience movement.

Q 69.C

- Textiles & garments industry employs 45 mn people in India and is second only to the agriculture sector in terms of employment. However, it is highly fragmented and is being dominated by the unorganized sector and small and medium industries. **Hence, statement 1 is correct.**
- Textiles which is one of the oldest industries in India, dating back several centuries contribute 2.3% to Indian GDP, 7% of the Industrial Output,12% to the export earnings of India and employs more than 45 million persons (Direct) which is 21 % of total employment. **Hence, statement 2 is not correct.**
- India is the 6th largest producer of Technical Textiles with a 6% Global Share (12% CAGR), the largest producer of cotton & jute in the world.
- Further, India is the second-largest producer of silk in the world (**China being the largest producer)**, and 95% of the world's hand-woven fabric comes from India. **Hence, statement 3 is correct.**

Q 70.A

- **Bommalattam are Puppets from Tamil Nadu. They combine the techniques of both rod and string puppets.** They are made of wood and the strings for manipulation are tied to an iron ring which the puppeteer wears like a crown on his head. A few puppets have jointed arms and hands, which are manipulated by rods. The Bommalattam puppets are the **largest, heaviest, and most articulate of all traditional Indian marionettes.** A puppet may be as big as 4.5 feet in height weighing about ten

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kilograms. Bommalattam theatre has elaborate preliminaries which are divided into four parts - Vinayak Puja, Komali, Amanattam, and Pusenkanattam. **Hence option (a) is the correct answer.**

- **The string puppets of Karnataka are called Gombeyatta.** They are styled and designed like the characters of Yakshagana, the traditional theatre form of the region. The Gombeyatta puppet figures are highly stylized and have joints at the legs, shoulders, elbows, hips, and knees. These puppets are manipulated by five to seven strings tied to a prop. Some of the more complicated movements of the puppet are manipulated by two to three puppeteers at a time. Episodes enacted in Gombeyatta are usually based on Prasangas of the Yakshagana plays. The music that accompanies is dramatic and beautifully blends folk and classical elements.
- **The traditional rod puppet form of West Bengal is known as Putul Nautch.** They are carved from wood and follow the various artistic styles of a particular region. In Nadia district of West Bengal, rod-puppets used to be of human size like the Bunraku puppets of Japan. This form is now almost extinct.
- **In Kerala, the traditional glove puppet play is called Pavakoothu.** It came into existence during the 18th century due to the influence of Kathakali, the famous classical dance-drama of Kerala, on puppet performances. In Pavakoothu, the height of a puppet varies from one foot to two feet. The head and the arms are carved of wood and joined together with thick cloth, cut and stitched into a small bag.

Q 71.B

- **Recent context:** Chinar Corps of the Indian Army was accorded recognition by the National Monuments Authority for preserving and rejuvenating Pandrethan temple, a heritage site situated in Srinagar's Badamibagh.
- **Pandrethan is an ancient stone temple dedicated to Lord Shiva** that lies within a square-shaped tank. It is located about four miles from Srinagar city. The temple, also once known as Meru Vardhana Swami, was built by Meru, minister to King Partha who ruled Kashmir from 921-931 AD. **Hence statement 2 is not correct**
- The roof of the temple was carved out of a single piece of rock and is known for its impressive designs and illustrations. The domed roof and arches of the temple are the best examples of classic Kashmiri architecture.
- It has four entrances with the usual pedimented trefoil designs. **Situated in the foothills of the Zabarwan range, and on Jhelum River banks,** it had massive Shiva lingam in its vicinity, with magnificent sculptures of Shiva Trimurti, Varah, Padmapani Avalikiteshwara and Shiva Lingas. **Hence statement 1 is correct**
- The temple is one of the best-preserved Shiva Temples of the **Sarvatrobhadra Style. Hence statement 3 is correct**
- There are three kinds of temples on the basis of access and the circumambulgatory path built in it.
    - **Sandhara:** These types of temples have a square sanctum enclosed by a gallery of pillars meant for Pradakshina. Thus, the Sandhara temples have a Pradakshinapatha.
    - **Nirandhara:** This type of temple **do not have Pradakshinapathas.**
    - **Sarvatobhadra: These types of temples have four functional doors** in cardinal direction and also a Pradakshinapatha with a row of 12 pillars around the Sanctorum. These types of temples could be accessed from all sides.

Q 72.C

- National Aeronautics and Space Administration (NASA) astronomers have detected X-rays from the seventh planet of our solar system, Uranus for the first time. The results were obtained using NASA's Chandra X-ray observatory. However, the new study is not based on recent observations, but from those taken in 2002 and 2017. **X-rays are types of electromagnetic radiation probably most well-known for their ability to see through a person's skin and reveal images of the bones beneath it**. Advances in technology have led to more powerful and focused X-ray beams as well as ever greater applications of these light waves, from imaging teensy biological cells and structural components of materials like cement to killing cancer cells. **Hence statement 1 is correct.**
- **X-rays are roughly classified into soft X-rays and hard X-rays. Soft X-rays have relatively short wavelengths of about 10 nanometers (a nanometer is one-billionth of a meter), and so they fall in the range of the electromagnetic (EM) spectrum between ultraviolet (UV) light and gamma-rays.** Hard X-rays have wavelengths of about 100 picometers (a picometer is one-trillionth of a meter). These electromagnetic waves occupy the same region of the EM spectrum as gamma-rays. The only difference between them is their source: X-rays are produced by accelerating electrons, whereas gamma-rays are produced by atomic nuclei in one of four nuclear reactions. **Hence statement 2 is correct.**

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Q 73.A

- Even after 66 years of Independence, India's North-East remains an enigma to many. A region predominantly tribal is still waiting for peace and tranquillity despite Naga, Mizo, and other accords over the years. The continuing rule of AFSPA and underdevelopment of the region haunt their lives. Demands for separate land (state) from every identifiable tribal group are echoing over the hills all along. In a sense, the 'Seven Sisters', considered to be vital to the security of the Nation, are feeling peripheral.
- The Four British Plans for North East India, 1941-1947" is indeed an eye-opener that provides an overview of the empirical thoughts of four British ICS officers serving in the region. They are Sir Robert N. Reid, Governor of Assam (1937-42); his successor Sir Andrew G. Glow (1942-47); James P. Mills, Advisor to the Government of Assam for Tribal Areas and States and his successor and fellow officer Philip F. Adams.
- The **Crown Colony Plan** was conceived during the closing years of the British rule and discussed at the highest levels of the colonial administration for setting up a **Crown Colony comprising the hill areas of North East India and the tribal areas of Burma.** The Plan couldn't be put into action for various reasons. By the middle of 1946, the Plan was wound up. The British came to realize it was ill-timed and conceived too late to shape up a protectorate of their own. **Hence option (a) is the correct answer.**
- The leaders of the region wanted the territory to become a part of the Indian union, but not with the crown colony. The freedom movement that extended after independence helped in the annexation of the territory to independent India.

Q 74.B

- **Article 80 of the Constitution** lays down the maximum strength of Rajya Sabha as 250, out of which 12 members are nominated by the President and 238 are representatives of the States and of the two Union Territories.
- The Fourth Schedule to the Constitution provides for allocation of seats to the States and Union Territories in Rajya Sabha.
- The representatives of the States and of the Union Territories in the Rajya Sabha are elected by the **method of indirect election.**
- The representatives of each State and two Union territories (Delhi and Pudducherry) are elected by the **elected members of the Legislative Assembly of that State and by the members of the Electoral College for that Union Territory**, as the case may be, in accordance with the system of proportional representation by means of the single transferable vote. The Electoral College for the National Capital Territory of Delhi consists of the elected members of the Legislative Assembly of Delhi, and that for Puducherry consists of the elected members of the Puducherry Legislative Assembly.
- **Hence option (b) is the correct answer.**

Q 75.A

- As per the Agriculture census for 2015-16: The total number of operational holdings in the country has increased from 138.35 million in 2010-11 to 146.45 million in 2015-16 showing an increase of 5.86%, however, the total operated area in the country has decreased from 159.59 million ha. in 2010-11 to 157.82 million ha. in 2015-16 showing a decrease of 1.11%. **Hence, statement 1 is correct.**
- In a total of 146.45 million operational holdings in the country, the highest number of operational holders belonged to Uttar Pradesh (23.82 million) followed by Bihar (16.41 million) and Maharashtra (15.29 million). **Hence, statement 2 is not correct.**
- The average size of operational holding has declined to 1.08 ha. in 2015-16 as compared to 1.15 in 2010-11.
- The small and marginal holdings taken together (0.00-2.00 ha.) constituted 86.08% of the total holdings in 2015-16 against 85.01% in 2010-11 while their share in the operated area stood at 46.94% in the current census as against 44.58% in 2010-11. **Hence, statement 3 is not correct.**

Q 76.B

- The orthodox section among the Muslim ulema who were the standard bearers of traditional Islamic learning organised the Deoband Movement. It was a revivalist movement whose twin objectives were:
  - to propagate among the Muslims the pure teachings of the Koran and the Hadis and
  - to keep alive the spirit of jihad against the foreign rulers.
- The ulema under the leadership of **Muhammad Qasim Wanotavi (1832-80**) and **Rashid Ahamad Gangohi (1828-1905)** founded the school at Deoband in the **Saharanpur district of the U.P. in 1866.**
- The **school curricula shut out English education and Western culture.** The instruction imparted was in the original Islamic religion and the aim was moral and religious regeneration of the Muslim community.

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In contrast to the Aligarh movement which aimed at the welfare of the Muslim community through Western education and support of the British Government. **The Deoband school did not prepare its students for government jobs or worldly careers** but for the preaching of the Islamic faith. It was for its religious instruction that the Deoband school attracted students not only from all parts of India but from the neighboring Muslim countries also. **Hence statement 1 is correct.**

- **In politics, the Deoband School welcomed the formation of the Indian National Congress in 1885. Hence statement 2 is not correct.**
- In 1888 the **Deoband ulema issued a religious decree (fatwa) against Syed Ahmed Khan's organisation the United Patriotic Association, and 'The Muhammaden Anglo-Oriental Association'. Hence statement 3 is correct.**

Q 77.D

- The RAMSAR Convention's mission is "the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world".
- The Convention uses a broad definition of wetlands. It includes all lakes and rivers, **underground aquifers**, swamps and marshes, wet grasslands, peatlands, oases, estuaries, deltas and tidal flats, mangroves and other coastal areas, coral reefs, and all human-made sites such as **fish ponds, rice paddies, reservoirs and salt pans.**
- **Hence option (d) is the correct answer.**

Q 78.D

- India's intellectual exploration of truth over the centuries has come to be represented by the **six orthodox systems of Indian philosophy which are Vaishesika, Nyaya, Samkhya, Yoga, Purva Mimansa, and Vedanta.**
- **Nyaya philosophy** is considered as a technique of logical thinking. According to Nyaya, valid knowledge is defined as real knowledge, that is, one knows about the object as it exists. For example, it is when one knows a snake as a snake or a cup as a cup. Nyaya's system of philosophy considers God who creates, sustains, and destroys the universe. Gautama issaid to be the author of the Nyaya Sutras. **Hence option (d) is the correct answer.**
- **The Samkhya philosophy** holds that reality is constituted of two principles one female and the other male i.e. Prakriti, Purusha respectively. Prakriti and Purusha are completely independent and absolute. According to this system, Purusha is mere consciousness, hence it cannot be modified or changed. Prakriti on the other hand is constituted of three attributes, thought, movement, and the change or transformation of these attributes brings about the change in all objects. The Samkhya philosophy tries to establish some relationship between Purusha and Prakriti for explaining the creation of the universe. The propounder of this philosophy was Kapila, who wrote the Samkhya sutra.
- **Mimamsa philosophy** is basically the analysis of interpretation, application, and the use of the text of the Samhita and Brahmana portions of the Veda. According to Mimamsaphilosophy Vedas are eternal and possess all knowledge, and religion means the fulfillment of duties prescribed by the Vedas. This philosophy encompasses the Nyaya-Vaisheshikasystems and emphasizes the concept of valid knowledge. Its main text is known as the sutras of Gaimini which have been written during the third century BC.
- **Vaisheshika system** is considered as the realistic and objective philosophy of the universe. The reality according to this philosophy has many bases or categories which are substance, attribute, action, genus, distinct quality, and inherence. Vaisheshika thinkers believe that all objects of the universe are composed of five elements–earth, water, air, fire, and ether. They believe that God is the guiding principle. The living beings were rewarded or punished according to the law of karma, based on actions of merit and demerit. The creation and destruction of the universe was a cyclic process and took place in agreement with the wishes of God. Kanada wrote the basic text of Vaisheshika philosophy.
- **Vedanta** implies the philosophy of the Upanishad, the concluding portion of the Vedas. Shankaracharya wrote the commentaries on the Upanishads, Brahmasutras, and the Bhagavad Gita. Shankaracharya's discourse or his philosophical views came to be known as Advaita Vedanta. Advaita literally means non-dualism or belief in one reality. Shankaracharya expounded that the ultimate reality is one, it is the Brahman. According to Vedanta philosophy, 'Brahman is true, the world is false and self and Brahman are not different, Shankaracharya believes that the Brahman is existent, unchanging, the highest truth and the ultimate knowledge. He also believes that there is no distinction between Brahman and the self. The knowledge of Brahman is the essence of all things and the ultimate existence.

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Q 79.C

- **The Nehru Report, 1928:**
  - While the Simon Commission was carrying on its work in isolation from Indian public opinion, the leading Indian political parties were trying to forge a common political programme.
  - An All-Parties Conference, **presided over by Dr. M.A. Ansari,** was convened at Bombay on May 19, 1928 and appointed a Committee under Motilal Nehru's Chairmanship to consider and determine the principles of a constitution for India. **Hence statement 1 is correct.**
    - ✓ The Committee consisted of **Sir Tej Bahadur Sapru**, Sir Ali Iman, M.S. Aney, Mangal Singh, Shuab Qureshi, G.R. Pradhan and **Subhas Chandra Bose. Hence statement 2 is correct.**
  - The Nehru Report confined itself to British India, as it envisaged the future link-up of British India with the princely states on a federal basis. **For the dominion** it recommended:
  - **Dominion status** on lines of self-governing dominions as the form of government desired by Indians.
  - **Rejection of separate electorates** which had been the basis of constitutional reforms so far; instead, a demand for joint electorates with reservation of seats for Muslims at the Centre and in provinces where they were in minority.
  - **Linguistic provinces.**
  - **Nineteen fundamental rights** including equal rights for women, right to form unions, and universal adult suffrage.
  - **Responsible government at the Centre and in provinces.**
  - Full protection to cultural and religious interests of Muslims.
  - Complete dissociation of State from religion.

Q 80.C

- **First 'rural' Session:**
  - Held at **Faizpur in 1936** near **Jalgaon**, this **was the first Congress Session in a rural area**. Pandit Nehru said during his presidential address, 'A vaster and more pressing problem is that of the peasantry, for India is essentially a land of the peasants. In recognition of this fact, and to bring the Congress nearer to the peasant masses, we are meeting here today at the village of Faizpur and not, as of old, in some great city'. **Hence statement 3 is correct.**
- **1947 Session**:
  - **J.B. Kripalani presided over the Meerut session in 1947.**
  - He was one of the most ardent disciples of Mahatma Gandhi and was **president of INC during the transfer of power from Britain to India in 1947. Hence statement 2 is correct.**
- **Rash Behari Ghosh presided over two consecutive sessions** i.e. **Surat Session (1907) and Madras Session (1908)**. Moreover, **Jawaharlal Nehru also presided over two consecutive sessions i.e. Lucknow Session (12-14 April, 1936) and** Faizpur Session (27-28 December, 1936). However, Subhash Chandra Bose also presided over two consecutive sessions. He was the president of the Haripura session, 1938 . He was elected the president for the Tripuri session in 1939 but had to resign. He was replaced by Rajendra Prasad**. Hence statement 1 is not correct.**

Q 81.D

- According to a Central Pollution Control Board report, in financial year 2019-2020, India generated 1,014,961.2 tonnes of e-waste for 21 types of electrical and electronic equipment (EEE). The unprecedented generation of e-waste is a cause of concern. This waste is classified into six categories: Cooling and freezing equipment like refrigerators, freezer other equipment such as televisions, monitors, laptops, notebooks and tablets.
- **Statement 1 is not correct:** India is the **third-largest producer** of e-waste after China and the United States.
- **Statement 2 is correct:** More than 95% of this waste is handled by informal sector. Also, COVID-19 caused unnecessary short-term investment in technology, which leave us at risk with data being stored on a wide range of devices.
- **Statement 3 is correct:** E-waste releases harmful chemicals, such as lead, on burning, which adversely impacts human blood, kidney and the peripheral nervous system. When it is thrown in landfills, the chemicals seep in the ground water affecting both land and sea animals.

Q 82.A

- **Cyclone Gulab** developed in September when the monsoon was still lingering. **Not only has Gulab arrived early, it has also achieved the extraordinary feat of traversing across land to enter the Arabian Sea and possibly turn into another cyclone—for the first time in 40 years.**

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- **The remnants of the cyclone Gulab travelled all the way across India, causing rainfall in Odisha, Chhattisgarh, Maharashtra and Gujarat. It finally dropping back into the Arabian Sea and intensified to form Cyclone Shaheen October 1, 2021.**
- **It originated in the Bay of Bengal a full month before the country's official cyclone season (October-November).**
- India has a bi-annual cyclone season that occurs between March to May and October to December. But on rare occasions, cyclones do occur in June and September months.
- Cyclones are less common during the June to September monsoon season, as there are limited or almost no favourable conditions for cyclogenesis due to strong monsoon currents. However, this year, Cyclone Gulab developed in the Bay of Bengal and later made landfall close to Kalingapatanam in Andhra Pradesh in September.
- **Hence option (a) is the correct answer.**

Q 83.A

- **NITI Aayog and International Energy Agency (IEA) launched the report, 'Renewables Integration in India 2021'. Hence option (a) is the correct answer.**
- Renewable integration refers to incorporating the generation, transmission, and distribution of renewable energy in the mainstream power system.
- The report recommends ways to integrate the increasing share of renewable energy capacity.
- The report uses IEA modelling results to show the effects of different flexibility options on the power system.
- The report highlights that India's power system can efficiently integrate renewables (175 GW by 2022 and 450 GW by 2030), but it would require identification of resources and proper planning, regulatory, policy and institutional support, energy storage and advance technology initiatives.

Q 84.B

- **The Act was passed under Article 262 of the Constitution to provide for the adjudication of disputes relating to waters of inter-State rivers and river valleys.**
- According to the Act, "water dispute" means any dispute or difference between two or more State Governments with respect to--
- **the use, distribution or control of the waters of, or in, any inter-State river or river valley; or**
- **the interpretation of the terms of any agreement relating to the use, distribution or control of such waters or the implementation of such agreement; or**
- **the levy of any water rate in contravention of the prohibition contained in section**. **Hence statement 1 is correct**.
- The Act provides for the constitution of a Water Disputes Tribunal by the Central government for the adjudication of the water dispute between states. Such a tribunal is ad hoc in nature. **Hence statement 2 is not correct**.
- Neither the Supreme Court nor any other court is to have jurisdiction in respect of any water dispute which may be referred to such a tribunal. However, the Supreme Court would have jurisdiction to decide any disputes between states in connection to water supplies, if legal rights or interests are concerned. **Hence statement 3 is correct.**

Q 85.A

- **Recently, International Energy Agency (IEA) and Electric Vehicles Initiative (EVI) released the annual Global EV Outlook 2021.**
- The Report states that the world had 10 million electric cars on roads at the end of 2020 (Close to 2.5% of the current market share).
- It states that if governments accelerate towards Sustainable Development Scenario, the global EV fleet will reach to a market share of 12%.
- **Hence option (a) is the correct answer.**

Q 86.B

- **The 102nd Amendment, 2018 inserted Articles 338B and 342A in the Constitution.**
  - **Article 338B** deals with the structure, duties and powers of the **National Commission for Backward Classes Commission (NCBC).**
    - ✓ **The commission is a five-member body (appointed by the President) their tenure and conditions of service will also be decided by the President. Hence statement 1 is not correct.**

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- ✓ The commission is tasked with monitoring safeguards provided for socially and educationally backward classes, giving advice on their socio-economic development, inquiring into complaints and making recommendations, among other functions.
- ✓ **It also provides that the Centre and the States shall consult the Commission on all policy matters concerning the SEBCs.**

- The Amendment also added **Article 342A, under which the President shall notify a list of SEBCs in relation to each State and Union Territory, in consultation with Governors of the respective States. Once this 'Central List' is notified, only Parliament could make inclusions or exclusions in the list by law. Hence statements 2 and 3 are correct.**
- **A definition of 'SEBCs' was added to the Constitution through this amendment — 'SEBC' means "such backward classes as are so deemed under Article 342A for the purposes of this Constitution".**

- **Recently, Ministry of Social Justice and Empowerment has framed an amendment to Article 342A (127th amendment) to introduce a third clause - Article 342A (3) to restore power of states to identify OBCs to be included on the respective state lists.**
- Until now, state governments were free to decide which castes would be part of the OBC list in their own state. Separate OBC lists are drawn up by the Centre and each state concerned since 1993.
- Articles 15(4), 15(5) and 16(4) expressly conferred power on a state to identify and declare the list of socially and educationally backward classes.
- **However, the Supreme Court ruling on the Maratha reservation held that only the President can declare any community as OBC and that too only on the recommendation of the National Commission for Backward Classes (NCBC).**
- **Additionally, Supreme Court has also remarked about there being in future a "single list" of OBCs that should be issued by the President on the recommendations of the National Commission for Backward Classes.**

Q 87.A

- Recently, Chief Wildlife Warden Friday issued orders to "hunt down" a man-eater tiger that had killed at least four people and more than 20 cattle in the surrounding areas of Gudalur forest range in the Nilgiris district. **Section 11(a) of the Wildlife (Protection) Act, 1972 permits hunting of wild animals to in certain cases.** According to section 11(a) **the Chief Wild Life Warden may, if he is satisfied that any wild animal specified in Schedule I has become dangerous to human life or is so disabled or diseased as to be beyond recovery, by Order in writing and stating the reasons therefor, permit any person to hunt such animal or cause such animal to be hunted** provided that no wild animal shall be ordered to be killed unless the Chief Wild Life Warden is satisfied that such animal cannot be captured, tranquilised or translocated and further that no such captured animal shall be kept in captivity unless the Chief Wild Life Warden is satisfied that such animal cannot be rehabilitated in the wild and the reasons for the same are recorded in writing.
- **Hence option (a) is the correct answer.**

Q 88.C

- **Quantum computing is a rapidly emerging technology that harnesses the laws of quantum mechanics to solve problems too complex for classical computers.**
- Quantum computing holds the promise to solve some of our planet's biggest challenges - in the areas of environment, agriculture, health, energy, climate, materials science, and others we haven't encountered yet. For some of these problems, classical computing is increasingly challenged as the size of the system grows.
- Just as bits are the fundamental object of information in classical computing, qubits (quantum bits) are the fundamental object of information in quantum computing. While a bit, or binary digit, can have a value either 0 or 1, a qubit can have a value that is either 0, 1 or a quantum superposition of 0 and 1.
- **Qubits and binary bits**
  - **Qubits are typically subatomic particles such as electrons or photons, while a bit represents a stream of electrical or optical pulses.** Just like classical bits, a quantum bit must have two distinct states: one representing "0" and one representing "1". Unlike a classical bit, a quantum bit can also exist in superposition states, be subjected to incompatible measurements, and even be entangled with other quantum bits. Having the ability to harness the powers of superposition, interference and entanglement makes qubits fundamentally different and much more powerful than classical bits. **Hence statement 1 is correct.**

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- **For example, with two bits in a classical computer, each bit can store 1 or 0,** so together you can store four possible values – 00, 01, 10, and 11 – but only one of those at a time. **With two qubits in superposition, however, each qubit can be 1 or 0 or both, so you can represent the same four values simultaneously.** With three qubits, you can represent eight values, with four qubits, you can represent 16 values, and so on. **Hence, statement 2 is correct.**

Q 89.D

- **Dam Safety Act 2021 received President's assent.** The centre has brought the legislation under Article 246 of the constitution read with Entry 56 and Entry 97 of the union list.
- **Salient Features of the Act:**
  - **National Committee on dam safety will be constituted with three-year tenure**. **Hence statement 1 is not correct.**
    - ✓ **It will be chaired by Chairman of Central Water Commission** with Maximum of 10 representatives of central government in the ranks of joint secretary, maximum seven representatives of the state governments and three experts.
    - ✓ Functions of the Committee will include formulating policies and regulations regarding dam safety standards and prevention of dam failures, and analysing the causes of major dam failures and suggesting changes in dam safety practices.
  - **National Dam Safety Authority (NDSA):** It also envisages setting up of a National Dam Safety Authority to be headed by an officer not below the rank of an Additional Secretary, to be appointed by the central government. Its head office will be in New Delhi.
    - ✓ The main task of NDSA includes implementing the policies formulated by the National Committee on Dam Safety, resolving issues between State Dam Safety Organisations (SDSOs), or between an SDSO and any dam owner in that state, specifying regulations for inspection and investigation of dams.
    - ✓ The NDSA will also provide accreditation to agencies working on construction, design and alteration of dams.
  - **Obligations of Dam Owners:** The owners of the specified dams are required to provide a dam safety unit in each dam. This unit will inspect the dams before and after the monsoon session, and during and after every earthquake, flood, or any other calamity or sign of distress. Dam owners will be required to prepare an emergency action plan, and carry out risk assessment studies for each dam at specified regular intervals through a panel of experts.
  - **The Act does not mention the payment of compensation to people affected by dam projects. Hence statement 2 is not correct.**

Q 90.B

- The Arctic Circle, one of the most climatologically important regions on the planet, has continued to warm at more than twice the rate as the rest of the world through 2021.
- The time between October 2020 and September 2021 was the seventh-warmest since the beginning of records.
- It was the eighth consecutive year since 2014 when the average temperature of the region was at least 1 degree Celsius above the pre-industrial average.
- **The warming has caused the rapid melting of sea ice.**
- The melting snow has in turn **increased the discharge of the Arctic rivers** by 12 per cent over the average between 1981 and 2010, which could change the intensity of the water cycle of the region.
- The warming has also caused major disruptions in the ecology of the Arctic region.
- Scientists observed a **higher ocean primary productivity than the long-term average between 2003 and 2020**, in seven of the nine sub-regions of the Arctic.
  - Ocean primary productivity is measured in terms of the extent of phytoplankton in the oceans, which form the first link in the food web of most marine ecosystems.
- **The green cover of the tundra biome of the Arctic region also increased in 2021.**
  - Beavers have been colonising the Arctic tundra in western Alaska, transforming lowland ecosystems and degrading permafrost by increasing the amount of unfrozen surface water on the landscape in winter.
- **Lightning strikes have started occurring much more frequently in the Arctic** as the region experiences unprecedented warming temperatures.
  - The North Pole saw 7,278 lightning strikes in 2021, nearly double in the previous nine years combined.
- **Hence, option (b) is the correct answer.**

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Q 91.D

- **Koala**
  - The Australian government has officially listed the koala as Endangered after a decline in its numbers due to land clearing and catastrophic bushfires shrinking its habitat.
  - Koala is an herbivorous marsupial, found only in Australia. **Hence Statement 1 is correct.**
  - Live in eucalyptus trees of native bushlands and forests.
  - Koala species have inhabited parts of Australia for at least 25 million years.
- **Asiatic Wild Dog also known as Dhole**
  - Recently, researcher spot Dhols in Kyrgyzstan after 3 decades.
  - Native to central and southeast Asia.
  - **India sustains the highest numbers of dholes,** widely distributed in three major landscapes: Western Ghat, Central India, and Northeast India. **Hence statement 2 is correct.**
  - **Conservation status:** Endangered status under IUCN and Schedule II under Wildlife protection act 1972.
- **Golden Langur**
  - Recently, Villagers in Assam opposed the upgrade of Kakoijana Reserve Forest home to Golden Langurs to a wildlife sanctuary.
  - Golden Langur is a Schedule I species under the Wildlife protection act and endangered under IUCN.
  - They are among the world's 25 most endangered primates, endemic to Assam and Bhutan. **Hence statement 3 is correct.**

Q 92.D

- The western cyclonic disturbances are weather phenomena of the winter months brought in by the westerly flow from the Mediterranean region. They enter the Indian subcontinent from the west and the northwest **during the winter months. Hence, statement 1 is not correct.**
- **An increase in the prevailing night temperature generally indicates an advance in the arrival of these cyclones disturbances. Hence, statement 2 is not correct.**
- Western Disturbances are the cause of the most winter and pre-monsoon season rainfall across North-West India. This phenomenon is usually associated with a cloudy sky, higher night temperatures and unusual rain. It is estimated that India gets close to 5-10% of its total annual rainfall from western disturbances.

Q 93.B

- The Medieval age in India witnessed a high level of craft production. There existed different forms of production from independent artisan level to the Karkhana's (state workshops) supported and run by the state. Craftsmen who belonged to this period were able to produce goods of very high quality with very simple tools ranging from daily use products to heavy ships. The artisans in India during this time were organized under two categories- the free artisans were working their own under (at the individual level) the artisan system and regimented workers working under the Karkhana system.
- **Statement 1 is not correct:** When the production was organized on an individual basis an artisan lacked big resources to invest in the production process and the size of the final product remain small. **This problem was addressed by the Dadni system which organise the individual artisans (and not those who are working in karkhanas)** to increase the production of craft.
- **Statement 2 is correct:** Under this, the **necessary raw materials and money in advance were given to the artisans by merchants** and after the production was completed the merchants collected finished goods and sold them in the markets. This also paved way for the control of merchants over professional artisans by advancing them loans.As a result a classof master craftsmen known as Ustad emerged in medieval India.
- **Royal workshops (Karkhana)** were another unit of craft production. The Karkhana's were produced commodities for the consumption of the royal household. Generally, expensive and luxury items were produced here. Karkhana's employed skilled workers, who worked under one roof and were supervised by state officials. There were **two types of Karkhana's** that existed during this time; first the traditional type of Karkhana's, which produced luxury goods in small quantity but of high artistic value, and second was the mint or arms manufacturing unit, wherein standard oriented and technological large production took place.

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Q 94.C

- **Banks Board Bureau is an Autonomous Body of Government of India** committed to improving the Governance and Boards of public sector financial institutions. The Secretariat of the Bureau currently comprises Secretary and four officers.
- Central Government notified the amendment to the Nationalised Banks (Management and Miscellaneous Provisions) Scheme, 1980 providing the legal framework for composition and functions of the Banks Board Bureau on March 23, 2016. **The Bureau accordingly started functioning from April 01, 2016 as an autonomous recommendatory body. Hence, statement 1 is correct.**
- The functions of the Bureau outlined in the Section 7(C) of the Scheme and in subsequent amendments as per orders of Appointment Committee of the Cabinet include:
  - **To recommend the selection and appointment of Board of Directors in Public Sector Banks, Public Sector Financial Institutions and Public Sector Insurance Companies; Hence, statement 2 is correct.**
  - To advise the Central Government on matters relating to appointments, confirmation or extension of tenure and termination of services of the Directors of mandated institutions
  - To build a data bank containing data relating to the performance of mandated institutions and its officers;
  - To help the banks in terms of developing business strategies and capital raising plan and the like;

Q 95.D

- The New Development Bank (NDB) is a multilateral development bank (MDB) established by Brazil, Russia, India, China and South Africa (BRICS) in 2015 with the objective of financing infrastructure and sustainable development projects in BRICS and other emerging economies and developing countries. It's work complements the efforts of multilateral and regional financial institutions, toward global growth and development. The membership of NDB is open to the members of the United Nations. NDB commenced the admission of its first new member countries in the second half of 2021.
- **Recently, Bangladesh, United Arab Emirates, Uruguay and Egypt** joined the bank.
- It's current members are:
  - **Brazil**
  - **China**
  - **Russia**
  - **India**
  - **South Africa**
  - **Bangladesh**
  - **Uruguay**
  - **United Arab Emirates**
  - **Egypt**
- **Hence option (d) is the correct answer.**

Q 96.D

- **The Bengal Government issued a circular** on 10, October 1905 which came to be known as the "Carlyle Circular", **instructing the District Magistrates and Collectors to take stern measures against political activities by students during** the **Swadeshi movement.**
- It condemned the use of school boys and students for political purpose as absolutely subversive and called upon teachers to prevent boys from taking part in political activities. Withdrawal of the right of competing for government scholarships was prescribed for activities as a penalty for disobedience.
- The District Officers were requested to report to heads of schools and colleges, names of the students who took part in the Swadeshi Movement.
- **Hence option (d) is the correct answer.**

Q 97.A

- As per Ohm's law, the resistance of the conductor depends
  - on its length,
  - on its area of cross-section, and
  - on the nature of its material.
- Precise measurements have shown that the resistance of a uniform metallic conductor is directly proportional to its length (l) and inversely proportional to the area of cross-section (A) and p (rho) is a constant of proportionality and is called the electrical resistivity of the material of the conductor.

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- The SI unit of resistivity is Ωm. It is a characteristic property of the material. The metals and alloys have very low resistivity in the range of 10–8 Wm to 10–6 Ωm. They are good conductors of electricity. Insulators like rubber and glass have a resistivity of the order of 1012 to 1017 Ωm. Both the resistance and resistivity of a material vary with temperature.
- The following table shows that the resistivity of an alloy is generally higher than that of its constituent metals. Alloys do not oxidize (burn) readily at high temperatures. For this reason, they are commonly used in electrical heating devices, like electric iron, toasters, etc.
- Tungsten is used almost exclusively for filaments of electric bulbs, whereas copper and Aluminium are generally used for electrical transmission lines.

	Material	Resistivity (Ω m)
Conductors	Silver	1.60×10^{-8}
	Copper	1.62×10^{-8}
	Aluminium	2.63×10^{-8}
	Tungsten	5.20×10^{-8}
	Nickel	6.84×10^{-8}
	Iron	10.0×10^{-8}
	Chromium	12.9×10^{-8}
	Mercury	94.0×10^{-8}
	Manganese	1.84×10^{-6}
Alloys	Constantan (alloy of Cu and Ni)	49×10^{-6}
	Manganin (alloy of Cu, Mn and Ni)	44×10^{-6}
	Nichrome (alloy of Ni, Cr, Mn and Fe)	100×10^{-6}
Insulators	Glass	$10^{10} - 10^{14}$
	Hard rubber	$10^{13} - 10^{16}$
	Ebonite	$10^{15} - 10^{17}$
	Diamond	$10^{12} - 10^{13}$
	Paper (dry)	10^{12}

- **Thus the correct order is 3-4-1-2. Hence option (a) is the correct answer.**

Q 98.B

- **GPS Aided GEO Augmented Navigation (GAGAN)**
  - This is a Satellite-Based Augmentation System (SBAS) implemented jointly with the Airport Authority of India (AAI). The main objectives of GAGAN are to provide Satellite-based Navigation services with accuracy and integrity required for civil aviation applications and to provide better Air Traffic Management over Indian Airspace.
- **Indian Regional Navigation Satellite System (IRNSS): NavIC**
  - This is an independent Indian Satellite based positioning system for critical National applications. The **main objective is to provide Reliable Position, Navigation, and Timing services over India and its neighborhood, to provide fairly good accuracy to the user.** The IRNSS will provide basically two types of services
    - ✓ Standard Positioning Service (SPS) – This service will be available to all users.
    - ✓ **Restricted Service (RS) – This is an encrypted service and will be available only to authorized users. Hence statement 2 is correct.**
  - **To date, ISRO has built a total of nine satellites in the IRNSS series; of which eight are currently in orbit. Hence statement 1 is not correct.**
  - **Three of these satellites are in geostationary orbit (GEO) while the remaining in geosynchronous orbits (GSO) that maintain an inclination of 29° to the equatorial plane.** The IRNSS constellation was named as "NavIC" (Navigation with Indian Constellation) by the Honourable Prime Minister, Mr. Narendra Modi, and dedicated to the nation on the occasion of the successful launch of the IRNSS-1G satellite. The eight operational satellites in the IRNSS series, namely IRNSS-1A, 1B, 1C, 1D, 1E, 1F, 1G and 1I were launched on Jul 02, 2013; Apr 04, 2014; Oct 16, 2014; Mar 28, 2015; Jan 20, 2016; Mar 10, 2016, Apr 28, 2016; and Apr 12, 2018 respectively. **The PSLV-39 / IRNSS-1H was unsuccessful; the satellite could not reach orbit.**

Q 99.B

- **Narayan Meghaji Lokhande:**
  - Born in 1848 in Thane, Narayan Lokhande started his career with the railways and the postal department. Afterwards, he joined the Mandavi Textile Mills as Store Keeper in 1870. This mill-life

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experience provided him ample first-hand exposure to the exploitative nature of factory work, and the miserable living conditions of the mill hands, prompting him to organise them for their basic rights.

- He is considered as **the Father of the Indian Trade Union Movement.**
- He established the **Bombay Mill Hands Association** (BMHA)**—the first labour organisation in the country in 1884.**
- For Lokhande, trade unionism was a means for addressing social issues and injustice. He considered economic betterment and social justice as the dual goals of worker collectivity.
- An **ardent follower of Jyotirao Phule,** a renowned social reformer in Maharashtra, Lokhande was highly influenced by the activities of **Satyashodhak Samaj**, and devoted his life in fighting social ills and improving the status of the downtrodden.
- He served as **Editor of the first labour journal in the country, Deenbandhu** (Friend of the Poor), in Marathi from 1880 till his death in 1897. The journal, which was started in 1877 by Bhalekar (a colleague of Jyotirao Phule), had been discontinued when Lokhande took over the editorship. With the help of financially well-off friends, Lokhande published the journal without any interruption throughout his tenure.
- Besides labour and social issues, he also wrote influential editorial notes for Hindu-Muslim unity.
- **Hence option (b) is the correct answer.**

Q 100.B

- To fast-track free trade agreement (FTA)negotiations with several countries like the UK, Australia, the European Union, Canada, India is keen to conclude an "early harvest" trade deal with some of these countries.
- **An early harvest scheme is a precursor to an FTA between two trading partners. This is to help the two trading countries identify certain products for tariff liberalization pending the conclusion of the FTA negotiation.** It is primarily a confidence-building measure. **Hence statement 2 is correct**
- **Preferential Trade Agreement (PTA)**: In a PTA, two or more partners agree to reduce tariffs on the agreed number of tariff lines. For example, India MERCOSUR PTA.
- **Comprehensive Economic Cooperation Agreement (CECA) and Comprehensive Economic Partnership Agreement (CEPA)**: These terms describe agreements that consist of an integrated package on goods, services, and investment along with other areas including IPR, competition etc. The India Korea CEPA is one such example
- **Custom Union**: In a Customs union, partner countries may decide to trade at zero duty among themselves, however, they maintain common tariffs against the rest of the world. An example is the Southern African Customs Union (SACU). **It is a partial form of economic integration that offers an intermediate step between free-trade zones (which allow mutual free trade but lack a common tariff system) and common markets (which, in addition to the common tariffs, also allow free movement of resources such as capital and labor between member countries).** A free-trade zone with common tariffs is a customs union. **Hence statement 1 is not correct**
- **Common Market: A common market is a Customs Union with provisions to facilitate free movements of labor and capital, harmonize technical standards across members etc. European Common Market is an example.**
- **Economic Union**: Economic Union is a Common Market extended through further harmonization of fiscal/monetary policies and shared executive, judicial & legislative institutions. European Union (EU) is an apt example of this type.

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